SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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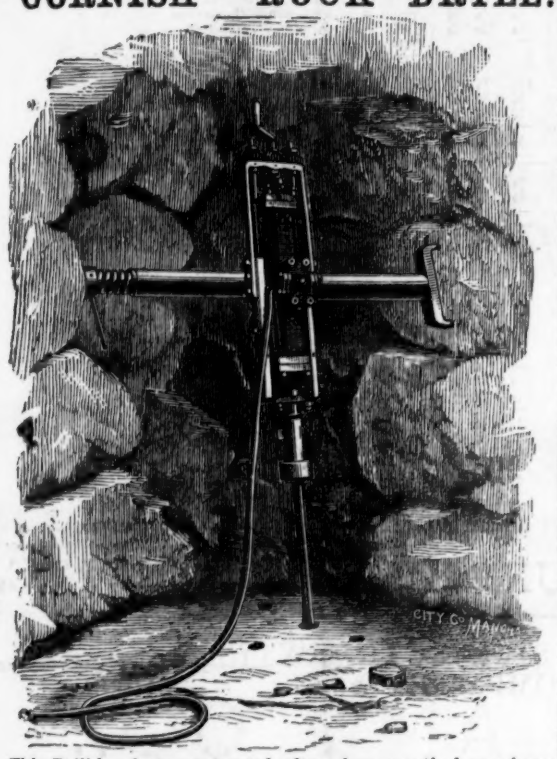
No. 2538.—VOL. LIV. LONDON, SATURDAY, APRIL 12, 1884. PRICE (WITH THE JOURNAL) SIXPENCE BY POST £1 4s. PER ANNUM.

FIRST SILVER MEDAL, ROYAL CORNWALL POLYTECHNIC —Highest Award for Effectiveness in Boring, and Economy in the Consumption of Air

JUBILEE EXHIBITION, 1882.

THE PATENT

"CORNISH" ROCK DRILL.



This Drill has been constructed after a long practical experience in the requirements necessary for Mines, and has more than realised the expectations of its inventors. The chief objects in view were GREATER DURABILITY AND LESS LIABILITY TO DISARRANGEMENT; but it has also proved itself more EFFECTIVE AND ECONOMICAL.

We are now prepared to enter into any reasonable arrangement so as to enable users to judge of its merits, as we are thoroughly convinced that we can offer the BEST ROCK DRILL IN THE MARKET.

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CAMBORNE FOUNDRY AND ENGINE WORKS,
CAMBORNE, CORNWALL.

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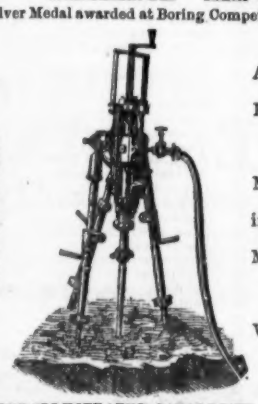
"ECLIPSE" ROCK-DRILL

AND

"RELIANCE" AIR-COMPRESSOR.

First Silver Medal awarded at Boring Competition, East Pool Mine, Sept. 1883.

SILVER MEDEL—PARIS, 1878—HIGHEST AWARD



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PATENT

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1872—American Institute.
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We claim 40 per cent. greater effective drilling power.

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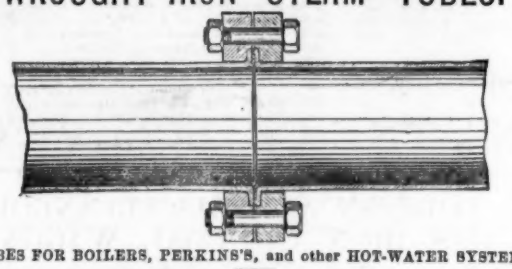

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Complete Rock Boring Plants of the most approved construction for Railway Tunnels, Quarries, Shaft Sinking, Level Driving, Stoping, and Submarine Blasting.

All Kinds of Mining Machinery.

ESTIMATES AND FULL PARTICULARS ON APPLICATION.

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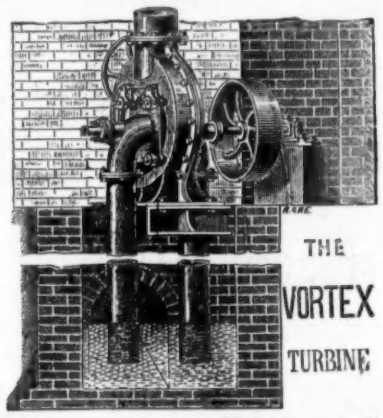

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Is the only Pump from which the disc can be removed by breaking the joint on a single face only.

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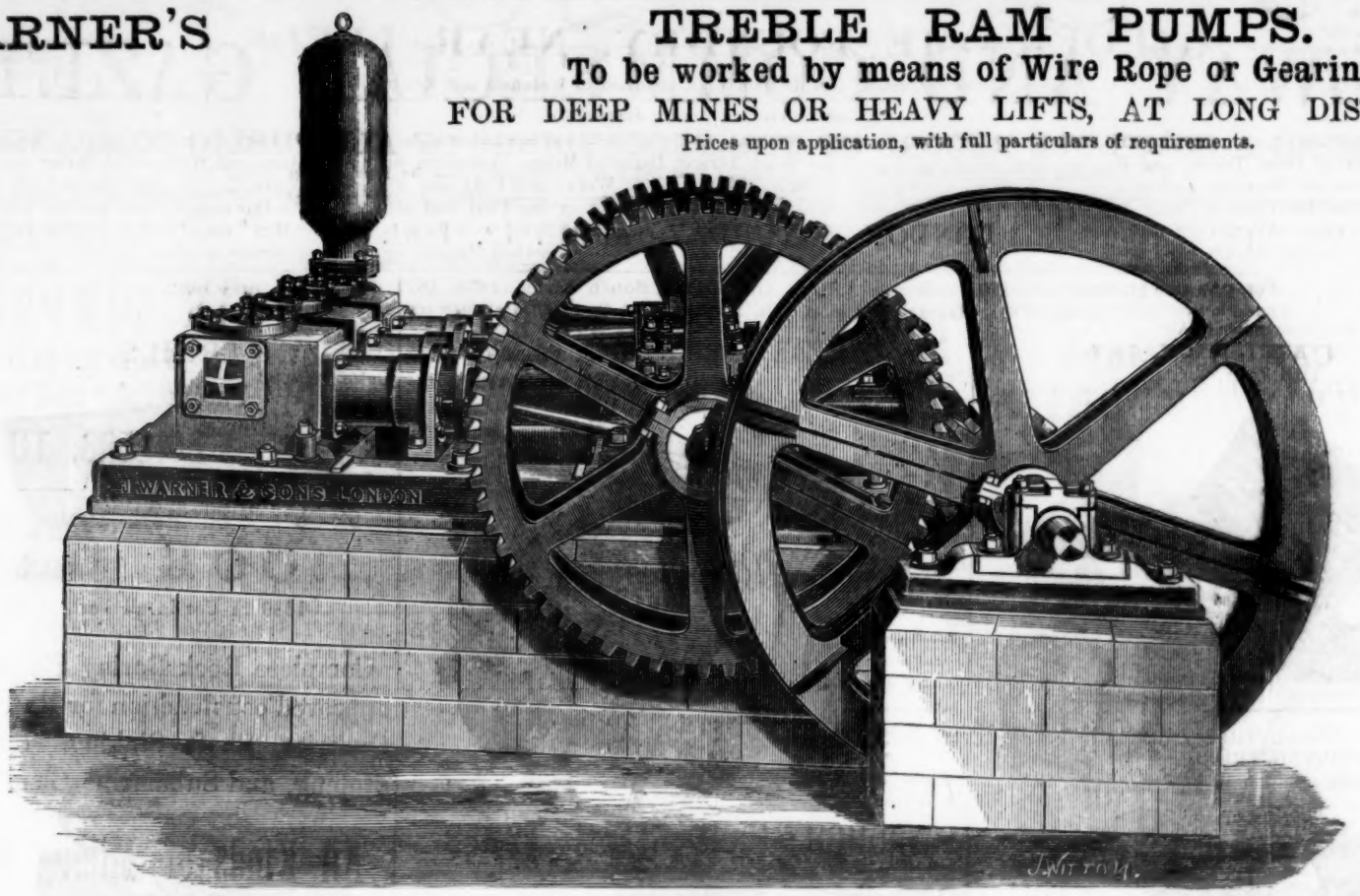
To be worked by means of Wire Rope or Gearing.
FOR DEEP MINES OR HEAVY LIFTS, AT LONG DISTANCES.
Prices upon application, with full particulars of requirements.



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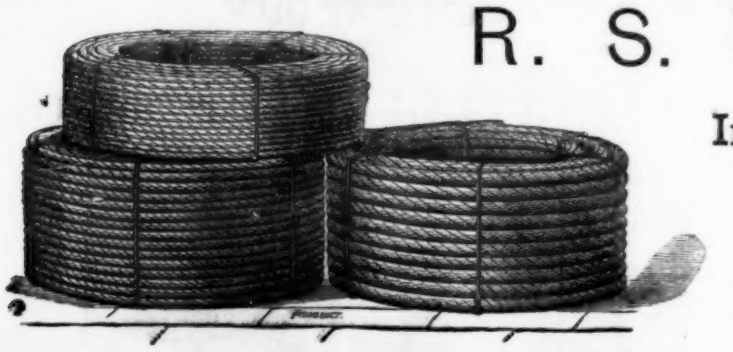

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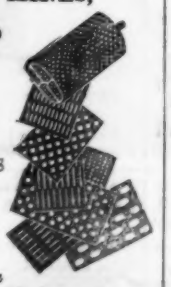

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This Turbine is applicable to all heights of fall. It works immersed in the tail-water, so that no part of the fall is lost, and the motion of the Wheel is not affected by floods or back-water.
These Turbines are at work in nearly every county in England. Apply to—
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TUBES AND FITTINGS for Gas, Steam, and Water; Galvanised, Enamelled, and Hydraulic Tubes; Boiler Tubes and Fittings; Gas Fitters' Tools; Brass Cocks, &c.
ANTI-CORRODO TUBES AND FITTINGS COATED BY BARFF'S RUSTLESSPROCESS

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PORTABLE RAILWAY, STEEL BUCKETS, &c., &c.

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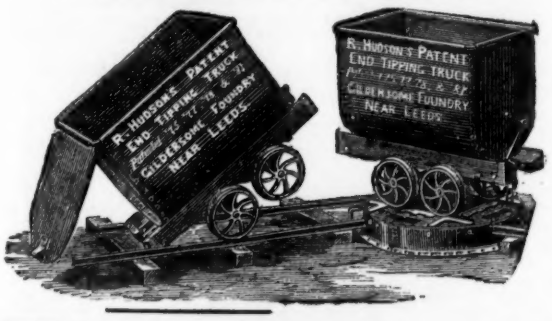
UPWARDS of 25,000 of these Trucks and Wagons have been supplied to the South African Diamond Mines; American, Spanish, Indian, and Welsh Gold, Silver, Copper, and Lead Mines; Indian and Brazilian Railways, and to Railway Contractors, Chemical Works, Brick Works, and Coal and Mineral Shippers, &c., &c., and can be made to lift off the underwork, to let down into the hold of a vessel, and easily replaced. They are also largely used in the Coal and other Mines in this country, and are the LIGHTEST, STRONGEST, and most CAPACIOUS made, infinitely stronger and lighter than wooden ones, and are all fitted with R. H.'s Patent "Rim" round top of wagons, requiring no rivets, and giving immense strength and rigidity. End and body plates are also joined on R. H.'s patent method, dispensing with angle-irons or corner plates.

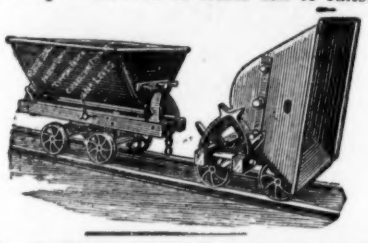
Patented in Europe, America, Australia, India, and British South Africa, 1875, 1877, 1878, 1881, and 1883.
N.B:—The American, Australian, Indian, and Spanish Patents on Sale.

CAN BE MADE TO ANY SIZE, AND TO ANY GAUGE OF RAILS.

1.—PATENT STEEL END TIP WAGONS.

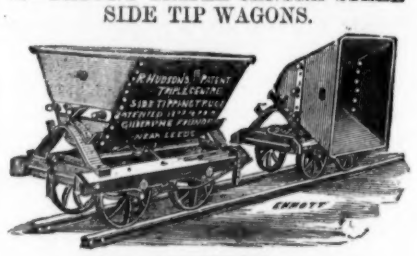


2. PATENT UNIVERSAL TRIPLE-CENTRE STEEL TIPPING TRUCK,
Will tip either SIDE or either END of rails.



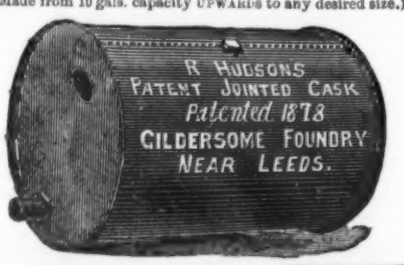
ONE man can EASILY tip ANY WEIGHT in these wagons.

3.—PATENT TRIPLE-CENTRE STEEL SIDE TIP WAGONS.

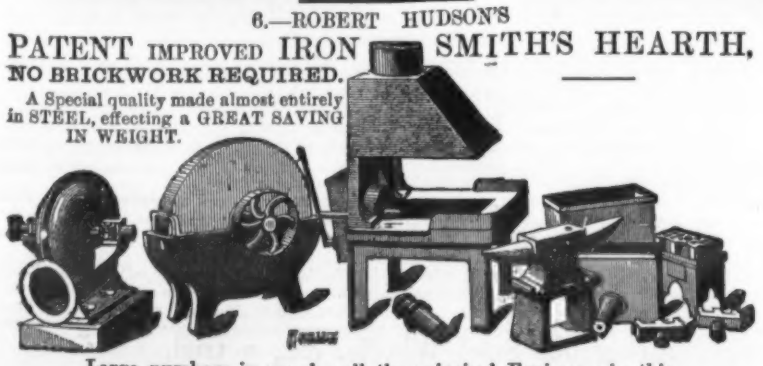


4. -PATENT STEEL PLATFORM OR SUGAR CANE WAGON.

5.—PATENT STEEL CASK.
As supplied to H.M. War Office for the late war in Egypt).
DOUBLE the STRENGTH of ordinary Casks without any INCREASE in weight.
(Made from 10 gals. capacity UPWARDS to any desired size.)

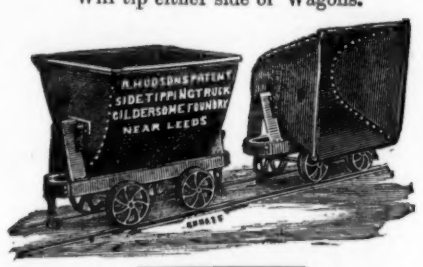


6.—ROBERT HUDSON'S
PATENT IMPROVED IRON SMITH'S HEARTH,
NO BRICKWORK REQUIRED.
A Special quality made almost entirely in STEEL, effecting a GREAT SAVING IN WEIGHT.

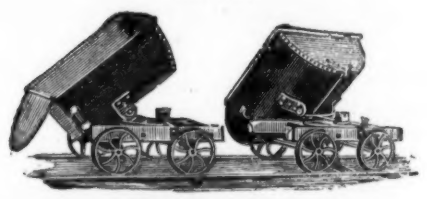


Large numbers in use by all the principal Engineers in this country and abroad.

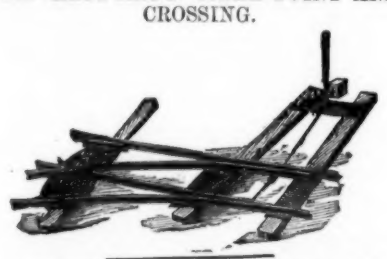
8.— PATENT DOUBLE-CENTRE STEEL SIDE TIP WAGONS,
Will tip either side of Wagons.



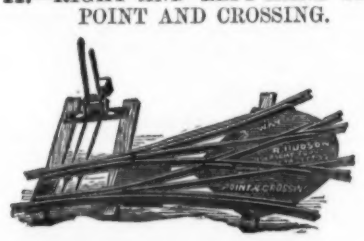
9.—PATENT STEEL ALL-ROUND TIP WAGON.



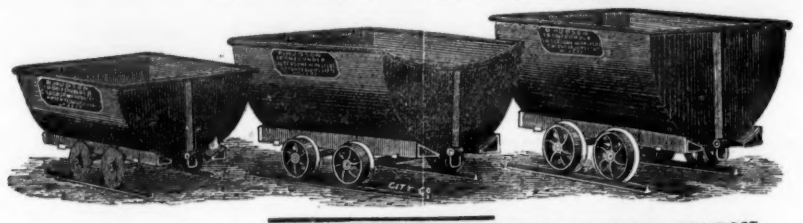
10.—LEFT-HAND STEEL POINT AND CROSSING.



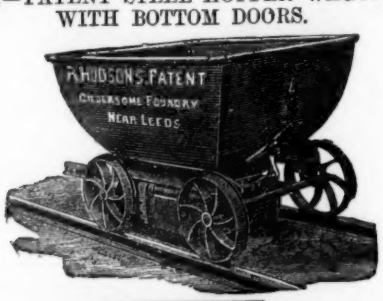
11.—RIGHT AND LEFT-HAND STEEL POINT AND CROSSING.



7.—PATENT STEEL MINING WAGONS.



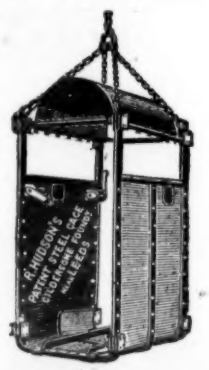
12.—PATENT STEEL HOPPER WAGON, WITH BOTTOM DOORS.



13.—PATENT STEEL HOPPER WAGON.

14.—SELF-RIGHTING STEEL TIP BUCKET.
(The "CATCH" can also be made SELF-ACTING if desired.)

15.—STEEL CAGE.



16.—PATENT STEEL WHEELBARROWS.
Made to any Size.
Lightest and Strongest in the Market.

A great success.

17.—STEEL SELF-CONTAINED TURNTABLE.

(Also made in CAST Iron for use where weight is not a consideration.

No. 19.—PATENT STEEL CHARGING BARROW,
DOUBLE the STRENGTH & much LIGHTER than ordinary Barrows

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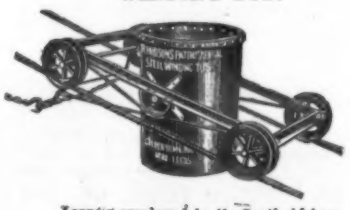

Largely employed in the South African Diamond Fields.

ALL KINDS OF BOLTS NUTS, AND RIVETS MADE TO ORDER ON THE PREMISES

HADFIELD'S STEEL FOUNDRY COMPANY,

ATTERCLIFFE, SHEFFIELD.

GOLD MEDAL.

GOLD MEDAL.

OUR SOLE SPECIALITY IS

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FROM 4 LBS. TO 16.000 LBS. EACH.

Contractors to H. M. Home, India, and Colonial Governments; Home, Foreign, and Colonial Railways, Admiralty, War Departments, &c.

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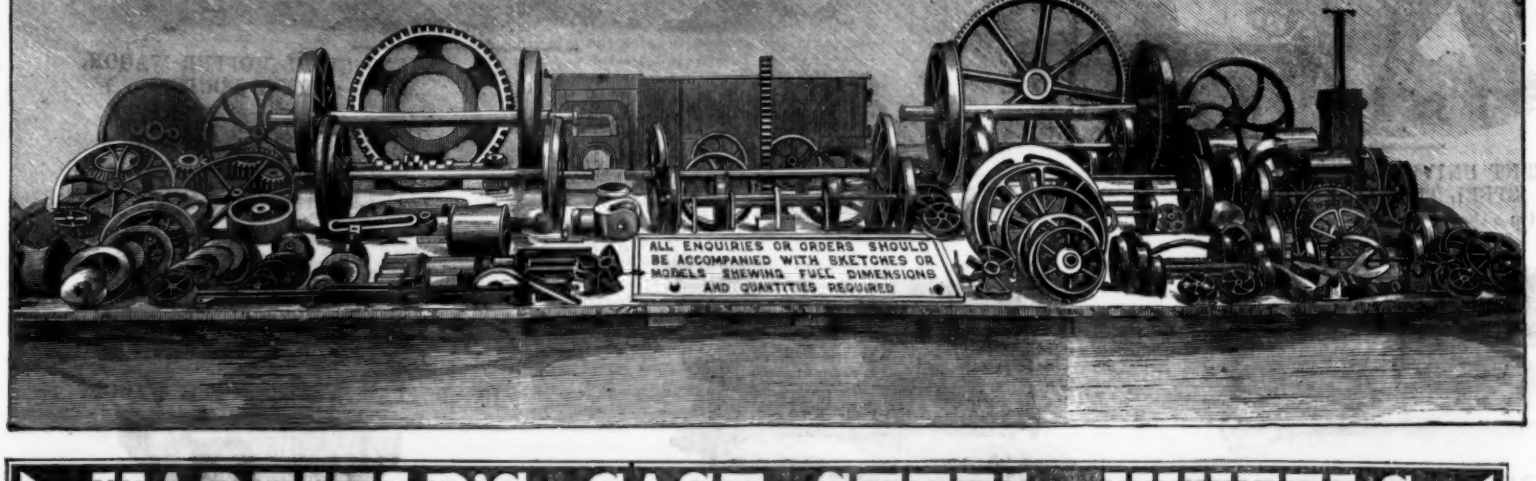
Special Diploma of Honour and Silver Medal, Sydney, 1880.
Gold Medal, Melbourne, 1881
HIGHEST AWARDS, LEEDS, MANCHESTER, WREXHAM, CORNWALL, &c.


ALL ENQUIRIES OR ORDERS SHOULD BE ACCOMPANIED WITH SKETCHES OR MODELS SHEWING FULL DIMENSIONS AND QUANTITIES REQUIRED

▷ HADFIELD'S CAST STEEL WHEELS. ◁

One of our departments is specially adapted for the production of our Patent Steel Wheels and Axles for collieries, tramways, ironstone mines, slate quarries, ironworks, lead mines, &c., and we are now manufacturing **2000** per week. Owing to our patent system of fitting-up Wheels and Axles, which is simple but effective, we are enabled to execute orders with promptitude. We undertake to supply all work entrusted to us in a first-class manner, and only manufacture the BEST quality of material. OVER 1600 DIFFERENT WHEEL, PULLEY, AND PEDESTAL PATTERNS IN STOCK, of varying widths of tread, flanges, &c., any of which can be ready for use at the shortest notice.

In addition to the now universally admitted superiority of Hadfield's steel wheels over those of cast-iron for lightness, strength, and wearing qualities, we claim the following SPECIALITIES for our material over any other steel, malleable iron, or other wheels, viz.:—

Extra TOUGHNESS or TENACITY, DURABILITY, and SOLIDITY; for proof of this kindly read the undermentioned.

X

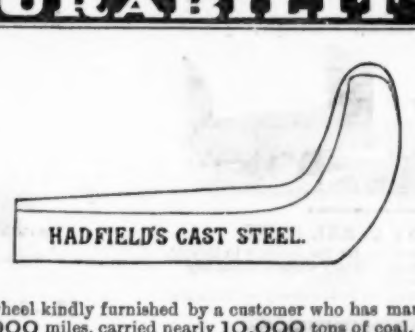
TOUGHNESS

This only represents an ordinary specimen of our manufacture.

Special attention is drawn to the slight indendations produced by the numerous and heavy blows, thus bearing out our claims for producing a special tough and tenacious steel which will not break or bend easily out of shape, and thus withstand the rough usage experienced at collieries, &c.

X This view represents one of Hadfield's Steel Wheels taken out of stock, bedded upon an anvil (thus getting full force of blow), then hammered COLD with no less than 45 swinging blows of a 14 lb. steel sledge hammer. We undertake that this same wheel, which may be seen at our works, can be heated in a smith's fire, straightened and put to use again; or if desired, a piece therefrom drawn out into a chisel, knife, &c.

DURABILITY



Section taken from a wheel kindly furnished by a customer who has many thousands at work. This wheel has run **40,000** miles, carried nearly **10,000** tons of coal, and although at work almost night and day for over five years is only worn so slightly, as shown above—**one-eighth of an inch!!** The wheels in question were 9 inches diameter, and weighed only **14 lbs.** each when put to work. This is only one out of many similar examples of the extraordinary durability of our material.

Prices **per set** furnished on receipt of sizes, either for wheels only or fitted together with Steel Axles by our well-known patent **fast** method *When so fitted by us we undertake that our wheels shall remain* **fast** *as long as the wheels and axles last.* Upwards of *half-a-million* are now in daily use fitted by Hadfield's patent fast method. This is the only system that successfully withstands the great strains experienced in collieries, &c., without working loose.

NOTE.—Beware of spurious and cheap imitations which eventually work loose, causing great loss and annoyance, as well as bringing discredit on the name of Steel Wheels and Axles. We are constantly replacing such. See, therefore, that Hadfield's name is on every wheel.

We also solicit attention to the following articles, which, in addition to our well-known Patent Steel Wheels and Axles, we are now largely supplying in our CAST STEEL, on account of their great strength combined with durability and lightness.

Rollers, Pulleys, Frames, and Stands.—See our lists of over 240 different patterns. They possess great durability, lightness, and strength, and add considerably to the life of the steel or other ropes.

Self-oiling Wheels (Patent).—Many thousands now at work. Save at least 50 per cent. of oil or grease. Easily charged or refilled. Reduce friction and wear and tear to a minimum.

Pedestals, Bushes, Cage Guides, Buffer Boxes, Points, Crossings, and other Colliery Castings of every description.

Over 1700 different patterns of above in stock, ready for use on the shortest notice. New patterns made to suit special requirements free of charge for quantities.

Steel Axles to suit all classes of haulage. We manufacture a special mild quality of steel suitable for this purpose, and have many *hundreds of thousands* in daily use giving every satisfaction.

Steel Gearing of all kinds. Machine moulded or from full patterns.

Miscellaneous Steel Castings, up to 16,000 lbs. each, to replace expensive wrought-iron and steel forgings and heavy iron castings. Tensile strain of our castings 35 to 65 tons per square inch (as tested by Government) varying according to purpose required, with 20 per cent. elongation.

Note.—Beware of spurious and cheap imitations which eventually work loose, causing great loss and annoyance, as well as bringing discredit on the name of Steel Wheels and Axles. We are constantly replacing such. See, therefore, that Hadfield's name is on every wheel.

N.B.—Note the Address, and prove truth of the above by giving our Steel Wheels, &c., a trial.

HADFIELD'S STEEL FOUNDRY COMPANY, HECLA WORKS, ATTERCLIFFE, SHEFFIELD.

[*This Sheet of Drawings is Copyright.*

Original Correspondence.

BRITISH ENTERPRISE IN MEXICO.

SIR,—I am pleased to see the letters in last week's *Mining Journal* anent the North Mexican Silver Mining Company, because every mining company that proceeds on intelligible principles to investors deserves encouragement. Mines should be worked to return profits, not for share jobbing purposes, which only puts money into the pockets of the jobbers at the cost of those who supply capital, and who in consequence get disgusted. I understand that this company starts on a solid foundation, and that it proposes to take advantage of the new communication by railway to work mines which have shown their productiveness when carried on with all the difficulty of transferring machinery on mule back.

The importance of cheap transport for mining is immense. Of this we have an example in the Cape Copper Company, who found it answer to build a line of railway from their mines to the coast, to serve no other purpose than the transportation of their ores. The result has been a great rise in that company's shares, which now sell at more than 400 per cent. premium. Where would the Comstock have been without the Union and Pacific Railway? With the opening of that railway their riches commenced. Without the same railway the Richmond Company would have been nothing but a sage bush desert. It would have been impossible to work the mine. In that company it answered the purpose of a San Francisco capitalist to form a railway 110 miles from the Union Pacific to Eureka for the sole purpose of transporting ores, and it is said that he has made more profit from his railway than the Richmond and Eureka Companies put together.

I have no doubt whatever that the next mining burst will be Mexico, for the very substantial reason that everyone knows of the riches of that country, and that the railway alone was necessary to render those riches available. Mexico, too, has undoubtedly ascended the ladder of confidence in the minds of investors. Where a short time since you might take up the money articles of the daily papers, and scarcely, from year's end to year's end, see any reference made to Mexican securities, now, day by day, you read of transactions which are going on. This will culminate in a rush for its mines, and I prophecy such a mania as we have never seen or heard of before—far exceeding that of the Indian gold mines. Whatever the result may be, and there is no doub tthat there will be some very grand successes, those who take time by the forelock to invest early will have excellent opportunities of making large profits.

Vincent-square, April 8. ALPHA.

THE UNWROUGHT MINERAL GROUND OF MEXICO.

SIR,—Ever since the year 1866, when the English Government withdrew its minister from and severed its connection with this country, it has been regarded in the light of an uncivilised, barbarous land wherein no security could be had for either life or property, and where anarchy and strife reigned supreme. As a natural consequence capitalists took all this for granted, and kept aloof from embarking money in such a country instead of seeing for themselves the true state of affairs. I do not wish to palliate the offences of the Mexican Government of 20 years ago, but I do wish most emphatically to say it is wrong to think if an offence has been committed that there can be no reformation, and to such an extent has the Government of this country improved that I make bold to assert no Government in the world is so liberal at the present time as the Mexican, for all foreigners have equal rights and privileges with a native in all matters, and English especially are treated with the greatest courtesy and consideration.

As a proof of the progress this country has made, there has been over 3000 miles of railway and more than 4000 miles of telegraph constructed during the last five years, which have tended to open the eyes of the people, and open up the country to investors more than can be imagined by an outside looker-on. But to come to the point what is wanted here is capital to develope the country, and especially its great wealth of unwrought mineral ground, in which analogy with some of the richest mines of the world, geological situation and formation, point with undoubted clearness to rich deposits of mineral lying dormant because of the want of a little capital to develope them. About the years 1854, 1855, 1856 the Messrs. Taylor and Sons, of London, spent nearly 200,000*l.* in this district, presumably in mining, but the great bulk was expended in making roads from their mines to their smelting-works, which they also erected before they had any mineral to put in them, consequently little actual work was done in the mines, and as a result the company got tired of such heavy expenditure and sold to a Mexican company at a loss. This company at once pushed on a tunnel begun by the Messrs. Taylor under a mountain in the mine of Rosario, and in less than five years from the date of the Messrs. Taylor's sale this mine gave (in conjunction with Guatamoczin Mine, immediately adjoining it and on the same lode) over $7,000,000 profit. These mines, as well as the Porvenir, San Nicholas, and San Pedro, are still worked by the same company, named the Real del Monte Mining Company, at a profit of over $62,000 per month, or 148,800*l.* per annum, and have accumulated a plant consisting of mining machinery, smelting-works, &c., valued at $4,000,000. These figures look enormous, and so they undoubtedly are, but it only shows what silver mining is in such a rich district, and yet grants of land on these same lodes, and in close proximity to these mines, are lying idle because the Mexican motto is—"Sufficient unto the day," &c., or in other words, "Enough is as good as a feast," and there is no outside capital to develope them. It is true American and European capital is fast coming in, but still this is nothing compared to what will come when the country is better. Nor is the case I quoted above an isolated one, for I may mention the mines of San Buena, Eucino, El Cristo, and El Bordo, also in this district, and all on offshoots from the great mother lode worked by the Aztecs, and then down through generations to the present time still giving splendid profits.

The cost of developing this virgin ground on these rich lodes is very trifling compared with the results which may confidently be expected, for the mineral strata generally lies (in this district) at a depth of from 40 to 140 fms. from surface, and it being a dry district there are little if any water charges, at least no pumping machinery is needed until a depth of from 180 to 200 fms. is reached, so that a company with from 40,000*l.* to 50,000*l.* could easily work at least four grants or setts. The size of a sett or grant is fixed by a Government scale, the length never varies, being 600 metres long, and the width varies with the underlie of the lode from 110 metres to 250 metres wide; for instance, if a mining concession be granted to any person or party the Government send an engineer to examine the property, the party to whom the grant is to be made have the choice of any lode the property contains whereon to take observations as to the direction and underlie (of course the lode that underlies most is chosen), and if the lode underlies 25 per cent. 110 metres wide is granted; this is varied by a fixed scale up to 96 per cent. underlie, when 250 metres wide is granted, but even more than this can be obtained, for no one can obtain a mining concession unless the grant is at least 100 metres wide, so that by acquiring two grants parallel to each other (say) 90 metres apart, this 90 metres being between the two grants belongs to them, and cannot be granted to any other party simply because it is not large enough to fulfil the Government requirement of 100 metres. So also can the same thing be done as regards length by acquiring two grants long on one lode, and leaving a piece (called demasia) between the ends of each sett.

The mining laws of this State (Hidalgo) are very liberal, there being no dues demanded till the mine or mines pay dividends, when the Government exact 1-25th part of the actual profit as dues. Neither are there leases, for a concession once granted is good as long as the code of Mining Laws are complied with, so that I make bold to say no country can do more to facilitate the introduction of capital into its mining industries than Mexico has done. I attribute the fact of the mines of this district not being so well known as the other rich mines of the world to their being owned by Mexicans who are very close on such matters, in fact it is only within the last 15 years that the Real del Monte Company would allow their employees to hold shares in any mine in the district, but the introduction of those whose boast is to sing, "Britons never will be slaves" completely broke down this selfish monopoly, and it is only fair to say the Mexican Government supported them in doing so.

There are sufficient smelting-works in this town, so that a company would have no need to erect any of their own to reduce the mineral, and this town being now in direct railway communication with the City of Mexico and the port of Vera Cruz transit to and from these places is very easy. Labour is comparatively cheap—Mexican miners earn from $1 to $2 per day, and English timbermen from $3 to $6 per diem. FRED. W. BAWDEN, M.E.

Pachuca, Mexico, Feb. 9.

A DISCURSIVE VIEW IN THE INTEREST OF MINING.

SIR,—I see that last week's *Mining Journal* contains No. X. of Mr. Robert Knapp's discursions. I do not question his ability as a writer, but I do question the propriety of the style or diction of his communications. Perspicuity is an important element in all compositions. Of this he is deficient. He may say that I am dull of apprehension, but he should write in a style adapted to the capacities of ordinary mortals. I can say that his style is unique; he is no imitator; he evidently intends to be singular—singularly clever. I subjoin a specimen of his diction:—

> To accept the alluring conditions is to imperil personal pecuniary interests, whilst to decline is to conserve them [so far clear], except on the part of those few initiated in the mysteries of the occult art, privileged and empowered to operate and influence the mechanism of magical evolutions, which fatally intoxicate ill-equipoised and ill-informed intellectual combinations (!) It will readily be seen that my allusions are to recently incorporated fraternities of abnormally high pretensions, soaring extensively beyond the limits of practical precedents of rational theoretic conclusions consonant with the basal facts.

Admitting that the reader is able to deduce the meaning of the writer, would it not be better for him to write in a style more like that of men of high education, who avoid stilted verbiage such as that presented by Mr. Knapp? He cannot do better than imitate the clear style of the late Mr. W. Cobbett, or that of Lord Macaulay, or J. Wesley, or Gibbon, in his future compositions. R. SYMONS.

Truro, April 7.

DISAPPOINTMENTS.

SIR,—Every one who knows] anything of mining must know that it is a speculative business; that every undertaking of the kind is not successful, and that, as people say, "there are more blanks than prizes." But in some cases the disappointment comes with more surprise than in others. Rocks Mine, in Roche, is one instance. The main lode there at surface and at the 10, 20, and 30 fm. levels, yielded tinstone of about 5 per cent. produce, but at the 40 the lode was found very small and useless. Hence abandonment. Hony and Trelawny, near Liskeard, was commenced with brilliant prospects. on a lode worked by the late Trelawny Company up to the boundary of Hony's land, and there they stopped, beeause the late Dr. Hony would not grant a sett. In his last will and testament he directed that no sett should be granted without the prompt payment of 5000*l.* The present company paid that sum, and have incurred about 50,000*l.* costs in machinery and labour in prosecuting the lode, which became worthless on its entry into Hony's land. They have driven a considerable distance on it, which is almost as thin as a knife (so described to me), and of course yielding nothing. Who would have expected such a result?

Wheal Agar was set to work about 40 years ago, and it was only at the last meeting that the first dividend was declared (1700*l.*), and it is to be hoped that the perseverance of the company will be rewarded by the reimbursement of their outlay, which is about 100,000*l.* This mine is distinguished for the incomparable number of impeding accidents which have happened to the machinery, &c., but the worst accident of all was the wire-rope breakage, whereby 12 men met a violent and sudden death a few months ago.

Wheal Uny has been at work probably 30 years—always promising, but never giving, profit; one of the "slocking" mines, as people say. Many other mines are in like condition, but so long as "prizes" are actual they will be also looked for as forthcoming. As a whole mining pays well. Speaking of perseverance, West Kitty presents a splendid example of its reward. The company, or successive companies, were working here for a very long time in adversity, but how do they stand now? Let the dividends say. R. SYMONS.

Truro, April 7.

AUSTRIAN GOLD MINES.

SIR,—Referring to the interesting letter of Mr. Kahn respecting the mines in the district of Ober Kärnthen, Austria, which appeared in the *Mining Journal* of March 22, I send you herewith extracts from a book written by Mr. James Bell, and published in Glasgow in 1830, which will probably interest your readers:—"With the exception of Saxony the mineralogy of the Austrian dominions is by far the most various and interesting of any European country, embracing every known mineral except tin. The mines of Herrengrund yield from 1200 to 1500 quintals of copper, and from 500 to 600 marks of silver annually. About one-third of all the silver produced in Europe is obtained in Hungary. About 40 miles to the south of the Crapack are the gold and silver mines of Cremnitz, and 20 English miles to the south are the silver mines of Schemnitz. The gold mine at Cremnitz has been worked for 1000 years and upwards, and is the richest of the seven gold mines in that quarter. Some of the silver ore is so rich as to be cut with a penknife, and most of it is impregnated with gold. At Cremnitz there is a mint, where the gold of the country is coined into ducats of the value of about half a guinea.

The number of persons employed in the Government mines here is 1500, and an equal number of miners are employed by private proprietors. The mines of Schemnitz are so rich, says Clarke, that in one week of the year 1763, the proprietors obtained 1763 marks of silver, or 3426*l.* sterling. This quantity was produced from the third and fourth veins, and from the fifth vein was obtained 700 marks of silver in the course of 14 days; eight men having sunk a shaft in the same vein, realised in 15 days, the sum of 80,000 fls., or 9000*l.* sterling. The number of miners employed by the Crown at Schemnitz is 8000, and 17,000 more are employed by private proprietors. The stamping-works at Schemnitz contain 1000 hammers, each stamping 3 quintals, or 300 lbs. weight of ore daily. The district productive of the precious metals contains five great parallel veins running east and west, and dipping at an angle of 80°. In these veins, consisting chiefly of spar varying from 60 to 120 ft. in thickness, and connected with each other by small irregular branches, is found the metallic ore-forming veins from 4 to 10 in. in thickness, and druses lined with crystals of the metal quartz and calcareous spar. The veins have been wrought to the depth of 1800 ft., and a machine exerting a pressure equal to 23 atmospheres was erected in them in 1828.

All the Imperial mines, says Dr. Clarke in his account of those at Schemnitz, have a connection with each other, offering in their length a subterraneous passage of 3000 fms., or 3½ miles. The view of the interior of the Paquer Stohln convinced us that there are no other mines in the world like those of Hungary. "We descended," says our traveller, "180 yards, and were then conducted by levels as airy and spacious as the corridors of a fine theatre to different parts of the mine where labourers were working the ore. How wretched in comparison appear the mines of Wales and Cornwall, where it is sometimes necessary to creep upon our hands and knees, wet through, over all sorts of rubbish, in order to pass a level from one shaft to another. Even the ancient mines of Sweden are inferior when compared with those of Schemnitz. The modes of descent into our English mines are always difficult and almost always dangerous; but the inside of a Hungarian mine may be compared to the interior arrangements of one of our best-built frigates, where space has been so husbanded, and oleanliness so strictly maintained, that nothing is seen out of place, and room sufficient for every operation is left.

The gold washings on the Drave, at the confines of Croatia, Hungary, and Styria, still produce 1200 marks, or 600 lbs. of gold, and more than 12,000 marks are still obtained from the gold washings on the rivers in the Bannat of Temeswar. The annual produce of iron in the same district is 694,000 cwts.; 34,000 cwts. of copper of a superior quality are annually produced in Hungary. The produce of mineral salt is immense, and the annual revenue derived by Government from the miners has been estimated at 10,000,000 fls."

A mineral peculiar to Hungary is the opal—a gem preferred to all others by the Oriental nations. The opal mines are situated at Czernwenicza, a short day's journey to the north of Kaschau, and nearly under the same latitude as Cremnitz. The hill in which the opals are found consists of decomposed porphyry, and the gems occur at the distance of a few fathoms from the surface. They are of various qualities, from the opaque white or semi-opal—which is also discovered in Cornwall—to the utmost effulgence of those irridescent colours which distinguish this noble gem.

The mines of Transylvania and the Bannat of Temeswar are very numerous and valuable. Those of Najiag, 12 British miles to the north-east of Deva, were discovered by a Wallachian peasant, who said that he had observed a light shining in the evening over the spot. This flame is exactly similar to that which appears in the neighbourhood of Pietra Mala, in Tuscany, and in the opinion of miners, is an indication of gold in the bowels of the earth. The mines indicated by the above phenomenon produce the grey-gold ore, or that precious metal mixed with antimony, arsenic, lead, iron, and sometimes manganese, and zinc. They are the richest in all Transylvania, and are conducted with the greatest care, the profits of the Najiag Mine, according to Dr. Clarke's information, amounting, during the space of 20 years, to 4,000,000 fls., or 25,000*l.* sterling annually, and the mine is still as productive as when discovered. At Ofenbaneja, 25 British miles to the north of Carlsburg, is found the white gold ore, which also occurs in the hills of Fatzebag, in the same quarter. To the west of Carlsburg the country presents numerous gold mines near Zalathna.

In the north of Transylvania are the gold mines of Kapnick, Rodna, Felsobanya, and others. Mr. Esmarck, who visited Hungary in 1796, also notices the gold mines of Virospatack, Kirnick, and Boitza; but some are exhausted. Oraviza, in the Bannat of Temeswar, situated on the west of a chain of mountains consisting of micaceous schistose granite, and metallic rock, or the "saxum metalliferum" of Baron de Born, is the chief mining town in that quarter. Towards the south of Oraviza are found mines of copper; and gold and silver mines at Dognaska, to the south. At Ohlapau, near Zalathna, the finest gold in Transylvania is found, mixed with gravel and sand. It is supposed that Hungary and Transylvania together produce, besides gold and silver, annually 34,000 lbs. of copper, also iron, quicksilver, and other minerals.

During a lengthy residence in Austria I had many opportunities of visiting a number of these old mines. I have often been puzzled to account for their abandonment, and made many enquiries as to this, but I was unable to get any satisfactory solution; some attributed it to want of pumping power, and others said that they had been worked out, but I am inclined to believe that the difficulty of amalgamating these refractory ores had really more to do with it than anything else. Tellurium was in those days hardly understood, and it is just possible that this might have had something to do with the matter. I intend shortly to revisit these old workings, when I will give a detailed account of the same in the *Mining Journal*.

Preston, April 9. F. KENSINGTON.

THE CELEBRATED POLGOOTH DISTRICT.

TREGONTREES AND OLD POLGOOTH CONSOLS.

SIR,—Your correspondent "H. C." in his letter in last week's *Mining Journal* has inadvertently, I am sure, described the above mine as the Great Wheal Polgooth, &c.; it is not, and never was, the Great Wheal Polgooth, and had this company not suffered so much in the past by the confusion of names I would not have troubled you with this correction. "H. C.'s" description is in substance very correct; but as many of the large number of people interested in mining, who have visited these mines lately, and seen the lode opened on, on the Mulvra portion may read his letter, they will know the new workings are on the east and not north side of the hill. I may add that the work there was decided upon by Capts. Martin and Pascoe and myself in June last year, and the work commenced, as will be seen on reference to Capt. Pascoe's report of July 10, 1883, or months before Capt. Thomas Parkyns' letter was published by you. I write this only in justice to our own agents, and certainly with no wish to detract from Capt. Thomas Parkyns' well known knowledge of mining and the Polgooth district, which knowledge has been so often and fully proved by his choice of properties and manner of working them.

R. B. FASTNEDGE, Chairman of the Board.

London, April 8.

BEDFORD UNITED MINES.

SIR,—It is a well-known fact that history often repeats itself, and in no other branch of industry does it more frequently occur than in mining; and as one of the oldest shareholders in this company, I venture to ask you to allow me a small space in your columns to refer to the past, present, and future of this mine. The property has now been worked by the present company, of course with various changes in the proprietary from time to time from 40 to 50 years, and prior to 1865 was a source of remuneration to the adventurers for many years. If I remember rightly, the original outlay was something like 50s. per share, and on which we received 15*l.* or 16*l.* per share in dividends, therefore many shareholders have no cause to regret their old association with the company. True, many calls have since been made, but I for one am sanguine enough to believe that the opening adage of this letter will yet be realised.

There are four lodes running through the sett—Wheal Marquis or Tavistock lode, the North lode, Deloe's Kitchen or South lode, and the Bridge lode. From Wheal Marquis all our early returns were made, and from which four-monthly and quarterly dividends (I forget which) were paid for many years. The North lode has produced many thousands of pounds worth of copper ore, but the low price of metals since operations were commenced has militated very seriously against any division of profits, the ore from this part of the mine not having been of so high a produce as that mined from either the Marquis or Bridge lode. There are at present one or two points worthy of further trial in the hope of making a discovery, and a few tons of ore are being sampled monthly.

The present company have not for some years past done anything on the Deloe's Kitchen lode, but as depth is attained at the Bridge lode I believe it would be desirable to effect a communication, and prove this lode all present appliances being available for the purpose.

Workings on the Bridge lode commenced in May, 1880, and although as yet but a shallow mine, some 160 tons of excellent quality ore are being raised monthly, and the returns are likely to continue. Reports on the Marquis lode show that from the 75 to the 90 fm. level a complete change came over the character of the lode, and yellow ore of high produce followed upon the black and grey ore previously raised at and above the 62 fm. level. It should be borne in mind that we are now about driving the 75 on this lode (Bridge), and if indications are worth anything, there is strong evidence of a long run of ore ground being intersected, which, notwithstanding the present standard, would place the mine in a position to materially increase present profits, and to make the undertaking a permanently dividend-paying concern.

There is but one drawback, and that is the high rate of dues we are called upon to pay; but in this we are not alone, still it is to be hoped should any appeal be made for some concession that the application may be successful. Nearly 90,000*l.*, I am informed, has been expended since 1863, of which 4000*l.* has been paid in royalty. These are strong facts for the consideration of the powers that be. Seeing the immense quantity of copper ore retained by our neighbour Devon Great Consols (and we are working on parallel lodes), and that the Bridge lode is likely to equal in productiveness the Wheal Marquis lode, I have a strong conviction that before long a change will take place that will be of mutual advantage to all interested in the mine. At present I look upon the property as a *bona fide* and safe investment, and believe that all things considered shares are far below their intrinsic value.

From information I have received from a reliable source I am induced to add that at our meeting, due next month, I think a good profit and balance in hand will be shown sufficient to justify the payment of a dividend. Only 14s. of the capital (1*l.* per share) having been paid, it has been proposed that as the remaining 6s. per share will in all probability not be required that shareholders should be asked to dispose of this liability by at once calling it up, and re-

turning the amount as a surplus dividend, thus making the shares fully paid. I believe this scheme was adopted at the Cape Copper Mines, and I imagine it to be an arrangement that would be concurred in unanimously. I have every reason to believe that the mine is being judiciously worked, that every economy is being exercised, and that generally speaking the affairs of the company, controlled by a good board of directors, are being conducted in a manner satisfactory to all concerned.—*City, April* 8. X. Y. Z.

NEW TERRAS.

SIR,—Men who carry on business under fictitious names should be cautious, like those dwelling in glass-houses. The share in New Terras are not "hawked about." Both Silver Valley and West Polgooth should be reopened, the first for lead and the other for tin. I wish success to Old Shepherds, East Wheal Rose, Tresavean, and Mounts Bay Consols, but as an investment I prefer New Terras, because returns are immediate; whereas the profitable results of operations in those mines is problematical, depending on the raising of more capital. I should be sorry for either of them to cease for want of funds, an event in anticipation in the minds of many persons. I hope, however, that such a calamity will not occur. The New Terras Mine and its management will bear the strictest investigation.—*Truro, April* 9. R. SYMONS,

LEADHILLS.

SIR,—Once more the Chairman, Mr. Peter Watson, holds forth. He sees no rift in the clouds, and is this time dull. He calls, as usual, on the captain, and on Mr. Newbigging, who have a story to tell him about Susannah, but still he is not happy. They wish the rent reduced—the old story—and have met the landlord's agent, &c. It has a pleasing sound, a reduction of rent, but if we analyse it in this instance we see it would not be of much value.

If the shareholders had the property for no rent at all they could not get back their money during the present lease, for the rent would not be more than 2½ per cent. on the stock of the company (120,000*l.*); and if they had it at half the present rent it would not be more than 1¼ per cent. The rent is not excessive. The landlord could easily get the property let at the same rent. Capitalise it and it would not reach the sum taken as profit by the syndicate who sold the mine to the present shareholders, and who certainly had less right to it than the landlord. Why not get them to return some of their excessive profit before coming to the landlord? This is the real millstone round the miner's neck.

I am a shareholder myself, and know the mine. I do not see why Mr. Watson "bounces" about the money they are spending in proving the mine. They are not spending one shilling more than what they are obliged to spend by their lease. It is very questionable if the last dividends should have been paid at all; at any rate the dividend was much too high, for 3s. per share is more than 10 per cent. per annum on the present value of the shares. The great object should be to reduce the capital of the company to what would be got for the property if it were sold, so that shareholders may really know its value. I think there are other improvements which might be made, notably in the way of cheaper carriage of coals and minerals to and from the works, and especially in the expenses outside of the mines. I fear there is little chance of a rise in the price of lead so long as other lead-producing countries can supply it cheaper than we can.—*Glasgow, April* 9. R. T. M.

OLD AND NEW VALUELESS COMPANIES (LIMITED).

FELLOW SUFFERERS,—Look after your interests. We are being deluged with circulars and price lists from unknown people, many of whose names are not even in the London Directory, whilst others assume a flimsy identity with those of good commercial repute. A combination has evidently again been formed to give a market value by puffing the price of various shares when they are on the very eve of failure to do so. Their primary object is apparent—to fabricate real prices, and so get rid of shares which these men hold, but which the prudent should not possess, much less entertain. All who have unwisely bought and paid for any should demand delivery at once of the certificates from the company; it is of no effect to be told that the transfers have been duly lodged. Delay need not arise, however often the directors meet. All who have sold shares should demand payment at once, and, where this is not forthcoming, give immediate instruction to your solicitor to proceed for the recovery in a magisterial way. This has recently been successfully done.

Those who have paid deposits against sales or purchases for forward delivery should demand immediate completion of their contracts. Take no reference to possible confederates, for all straightforward persons can give their bankers as reference; otherwise, apply to any of the trade protection societies. Heavy sufferers have been induced, by the misleading statements above referred to, to exchange a portion of their railway and such like valuable shares for worthless investments, which are found impossible to realise. There are several other instances where shares in mines, loan, discount, paper trusts, &c., have been substituted, upon which the liability is very questionable. Some, it is said, contemplate legal measures for the recovery of those shares which have been obtained from them by misrepresentations. Mine are no wild statements, though well known to the secretaries and others; and it would be desirous of forming a sufferers' co-operation for the protection of our purses' contents.

Let each shareholder and intending shareholder send to the Secretary of the Board of Trade the various circulars he has received, and also any correspondence bearing upon these various schemes, to be looked into, firstly, in strict confidence, and consent to assist with evidence that may easily be obtained. Numerous letters marked "private," "confidential" are being received, but they are so identical with a well-organised attempt, that taking counsel's opinion as to what use can be made of them is evidently unnecessary.

It is needless to go to the expense of tracing the various relations of these individuals, for one and all may feel assured that the accumulative evidence obtainable would be such as once and for all put an end to this system of loss and ruin under the garb of "*bona fide* investments." Union is strength, but publicity alone brings about justice.—*London, April* 9. A SUFFERER.

THE ENGINEERING TRADES.—The reports for the past month sent in by the various branches connected with the engineering Trades' Union societies show no very material change in the general condition of trade. The important engineering centres throughout Lancashire seem to be fairly well employed, and the percentage of members in receipt of out of work support on the books of the Steam-engine Makers Society remains at not more than about 1½ per cent. Locomotive builders and tool makers are generally well supplied with work, and the leading cotton machine-making firms are tolerably busy. Small stationary engine builders, however, are but indifferently employed, and in the boiler-making trade work is falling off rapidly, the number of men out of employment in this branch of industry being now very considerable. No further movement with regard to wages is reported, the position of affairs in this respect remaining much the same as last month; but with regard to the hours' question the secretary of the Steam-engine Makers' Society reports that in one district where the men had been working in excess of the standard hours they had been successful in bringing them in to the 54 hours' scale.

The UNITED ASBESTOS COMPANY have just issued a new Illustrated Catalogue of their productions. They show continued energy in catering for the wants of engineers. They have introduced new forms of packing and jointing material, for which there should be a very large demand, if the statements in their catalogue are to be depended upon. They still maintain that the Italian asbestos is the best for steam purposes, and of the high character of its fibre there can be no doubt. An excess of competition in the asbestos trade has caused a great deal of inferior material to be brought on the market, but the United Asbestos Company, as well as all respectable manufacturers, recognise the importance of keeping up the quality of their productions.

Meetings of Public Companies.

ECONOMIC LIFE ASSURANCE SOCIETY.

The annual general meeting of members was held on April 4 at the offices of the society, New Bridge-street, Blackfriars,

Mr. HENRY BARNETT in the chair.

Mr. JOHN RALPH GRIMES (the secretary) read the notice convening the meeting, and the report of the directors was taken as read.

The CHAIRMAN said: Gentlemen, I will not take up more of your time than is necessary, but you will naturally expect me to make a few remarks upon this annual report which you have had in your hands, although I think it will pretty well tell its own tale, but there are some few circumstances that are worth noting; because in the first instance they look perhaps as if they were not quite so satisfactory as to our progress as we might have desired. I think the final statement you will receive and consider will prove the contrary. Compared with the preceding year the number of proposals were more: we had 562 proposals against 528, but the amount proposed for was 353,000*l.*, against 370,000*l.* You will observe, therefore, that we have had more proposals, and the issue of more policies, but the amount of the proposals and the policies that have been effected have been rather less than they were in previous years. We issued on the whole 471 policies against 433, but the total amount assured was only 274,000*l.*, instead of 319,000*l.* Well, I think that may be acounted for in more ways than one. It is not the first time that I have had from this place to make a similar remark. Ten years ago something of the same sort occurred, and I have attributed it to the fact that for several years past our commercial affairs in England have not been altogether as profitable as they were at one time. I am told also that it may be attributed to another cause, that is, the practice of life assurance has gone down to a lower stratum of society than formerly, and that accounts for persons in a more humble class of life insuring their lives more frequently than they did formerly, and naturally not being able to assure for so large a sum. The annual premiums also show a small decrease of 1400*l.*, and the total premiums also show a decrease of about 9000*l.* The total income in 1883 was 377,000*l.* against 394,000*l.*, but that may be accounted for by the fact that in 1882 we had 14,000*l.* of exceptional receipts. The total receipts, including miscellaneous profits were very nearly as good as they were before—386,000*l.* against 394,000*l.*—and we managed to keep up the rate of interest, which I think was a fortunate circumstance. There was only a reduction of 1d. in the rate of interest that we received below that of last year, 4*l.* 6s. 3d., instead of 4*l.* 6s. 9d. Ten years ago the rate was 4*l.* 8s. 6d., but I need not dwell upon that, every gentlemen knows that the rate of interest on good securities has diminished, and that we do not deal in bad securities. Then our total liabilities now amount to 9,237,000*l.*, as against 9,348,000*l.*, being a decrease of 111,000*l.* in the year. The assurance fund now stands at 3,619,681*l.* against 3,569,000*l.*, showing an increase of 50,000*l.* on the year. The claims accrued in 1883 were 295,000*l.* against 278,000*l.* expected. The average amount with bonus was 1129*l.* against 1194*l.*, being 65*l.* less. The average age was about the same, and the largest rateable bonus upon a policy we paid was an addition of 689*l.* upon a policy of 500*l.*—about 138 per cent. The policies in force at the end of the year were 10,367, assuring 8,255,000*l.* without bonus, against 8,317,000*l.*, showing a diminution of our liabilities to that extent. In conclusion, the Chairman moved the adoption of the annual statement.—The Right Hon. E. P. BOUVERIE seconded the motion.

It was agreed that the motion should not be put until after the quinquennial statement had been made.

Mr. RICHARD CHARLES FISHER (the actuary) then read the quinquennial statement.

The CHAIRMAN said: I think you will all agree, particularly those gentlemen who are familiar with life assurance from practical experience, the account has been made as full as it could be made, and it really conveys as much information to any gentleman interested in the society as he is likely to require. At all events, we have tried to put it in such a way that those who taken the trouble to read it over carefully I think will be very well acquainted with the condition of the office, and I think will agree with me that nothing can be more satisfactory than the perfect security and soundness that is brought out by these figures. The valuation of the policies has been made as carefully as before, and on the same principles, taking a 3½ per cent. valuation, which is the principle adopted since 1844 when the shares were paid off. The assets, in reality, are put at the price at which they stand in the books—the cost price—and we have taken care not to increase their value to the extent we might have done by placing them at the actual price at which they stand in the market, because we know they are liable to fluctuations, and what looks so well might not do so on realisation. We have taken care that there should be a safe margin. The securities have been carefully examined by the trustees. Some of them are at the bankers, and some are in the strong room here. They have all been very carefully examined, and I can assure the proprietors that we are quite satisfied that they are all in due order, and in existence, although they are sometimes out of our sight. I have already alluded to the rate of interest that has been kept up during the quinquennium. There are some few matters connected with the figures that perhaps the meeting would like to know. The total proposals in the five years have been more by 109 than they were in the previous quinquennium, and the amount assured has been some 150,000*l.* less. The new premium income was slightly less, and the policies in force are some 300 more than they were five years ago. The total amount which is now assured with the bonus accrued to it is 9,237,255*l.* Five years ago it was 9,147,486*l.*, and the total revenue in the five years has been somewhat less—1,932,000*l.*—against 1,859,664*l.* On the other hand we have cancelled liabilities during that period of no less than 2,020,996*l.*, and the gist of the whole thing is that the value of our total liabilities is 3,059,000*l.* against 2,812,000*l.* five years ago. Our total assets are 3,619,000*l.* against 3,375,000*l.*, and the surplus is 568,000*l.*, whereas last quinquennium we had to announce a surplus of 562,000*l.* We are reminded of the period during which we have been established by the fact that it is the twelfth quinquennium, and we could hardly expect many of those who were insured within the first year or two of the establishment of the society to be still alive—there are two or three I believe still—and one or two lives have dropped lately, and of course those policies have carried very large bonuses with them, and by so much the liabilities have been reduced. Then this 384,000*l.* which we propose to divide as absolute bonus amongst those entitled to participate, will produce a reversionary bonus of 646,000*l.* That is the largest amount in reversion we have ever been able to declare. We had 400,000*l.* more last time that we now propose to appropriate as cash bonus. But it is right I should just remind gentlemen present we have thought it wise, by our actuary's suggestion, to make a rather larger reserve than we did on the former occasion, and we think that that will meet with the approval of the members generally. The claims have been in the five years just 11,750*l.* more than were expected. I hope that any gentleman will ask any question on any point on which he wants information, any we shall be most happy to give him that we can. I do not know that there is really anything else that I care very much to say, but I do wish to say this—that I hope the gentlemen who are insured in the office will bear in mind the last paragraph in the report which requests persons who are insured to do what they can individually by personal recommendation to recommend the society to their friends. I think with the accounts you now have before you you can do so very conscientiously. We are a very unpretending concern, but at the same time we are not only very safe, but we are doing that sort of business by which we are enabled to put by over 100,000*l.* a year, and at the end of every five years we divide it among the policy-holders. That seems to be the normal state of the office. Although the directors have done all in their power to increase the business by legitimate means they have not gone into any extravagant expense to do so. We have multiplied the agencies, in some cases with very good effect, and in some with very little. At the last quinquennium you will all recollect we made two or three changes in the direction of liberality in giving the policy-holders longer time in the payment of premiums, and we paid the claims in a shorter time, and we think those changes have produced a good result, at all events, they were received with great satisfaction. If I may be allowed to do so I will pospone for the present the moving of this resolution, and we will revert for the moment to the annual general court that we may hear remarks from gentlemen who are anxious to address us, and having done that we will get through the resolutions of the annual general court, and then I hope at once to pass to the resolutions of the quinquennial court.

Mr. ALGAR thought that the directors had not adopted a proper mode of bringing the advantages of this office before the public by advertising. He had been insured for 25 years, and during that period he had received good bonuses, and he had no real cause of complaint or grievance, but he should like to see new lives come in faster. Means ought to be adopted to let the public know that this was one of the best life assurance offices in the kingdom. They had the most economical rates of premiums, and they gave excellent bonuses every five years. There should be a proper system adopted of advertising this company, because the more they told the public the more advantageous it would be for the society.

Mr. RIDSDALE said he had been a policy holder for 25 years, and he agreed very much with the remarks that had been made. He was a policy holder in one of the American companies. He had examined the accounts of that company, and was quite satisfied with what he got for his money. He thought they should endeavour to increase their new business by offering additional attractions to the public. There were two points in which the American offices offered very great attractions—one was that after a certain number of premiums had been paid a policy holder could have a fully-paid policy if he could not keep up the premium, instead of allowing his policy to lapse or to be surrendered. It was well known that the surrender value of a policy was often not more than a third of the amount of the premiums that had been paid. The next point was the system of giving annual bonuses.

Mr. RIDSDALE thought that if they paid a bonus every year every man got something in the shape of a dividend, and it kept the existence of the society before his mind. He suggested that they should adopt the system of non-forfeiture of policies, and the payment of annual bonuses.

Mr. WILDE said that the American offices had one very great advantage over the English offices—they got a much higher rate of interest. Whether it would be wise for the English companies to invest in American securities was a question he thought it was much wiser not to go into them. He had always heard a very good account of the American offices, but the question was what state would they be in 20 years hence. The soundness of an office was far more important than a little business more or less.

Mr. WILDE asked if there had been any change in the directors. He knew there had been one death, but he did not know whether there had been any other changes?

Mr. ILIFFE was surprised to hear the remarks that had been made about the non-forfeiture of policies. When he was young he insured for a larger amount than he could continue. One of his policies was taken by the office, and they allowed him a life policy, and up to the present time he had been receiving bonuses on that policy. It only seemed to him that they had not sufficiently promulgated what were the merits of the office.

Mr. DUNPHY said it appeared to him that there was a general feeling in favour of greater liberality with regard to the treatment of policy holders. He might give an instance of one office in which he was himself insured where if there was a failure by accident, or any other cause, to pay the premium on the day it could be renewed within one month on the payment of 2s. 6d. That was an extremely liberal arrangement, and in that office they declared if they did not pay bonuses every year, they paid claims at once. Those were concessions which he threw out for the consideration of the board, but as regarded the American offices he believed that there were two that were thoroughly sound, but at the same time he must say that he should very much prefer a policy in this office.

The CHAIRMAN, in reply to the questions, said that if they advertised more largely that would be increasing the office expenses. With regard to the question of advertising they took that matter into their consideration some years ago, and they did one year advertise more freely than they had ever done before, but they could not find out that any practical advantage resulted to the office from it, therefore, they again took a more limited sphere of advertising, but with more selection, and at this moment they advertised not only in the daily papers, but in magazines and in weekly papers, and they had lately taken measures to advertise in all the leading country papers. With regard to the American offices he was not altogether competent to discuss them at any length. He did not know precisely on what principles those offices were established with regard to the calculation of premiums and different ages, but he knew that they were required to give large security to the Government, and that the rate of interest on investments in America was as six to four against an English office. He then came to the question of those policies where people could not pay their premiums, and where instead of forfeiting their policies they were allowed to substitute a new one. He regretted the remarks that had been made, because they showed that the gentleman had not informed himself of the practice of this office. They were in the habit constantly of giving fully-paid policies. With regard to the revival of policies they did it continually, and they gave not one month, but a whole year.

Mr. DUNPHY: Do you require any fresh medical examination?——The CHAIRMAN: If it is after any length of time we do. Sometimes we put a little fine on. With regard to annual bonuses they offered the policy holders three choices, and that advantage came to very much the same sort of thing. The bonuses could be taken in cash, in the reduction of premium for five years, or for the remainder of life. Those options had been received with favour, and they had not found it necessary to make any alteration. It was true that some other offices made a division of profits every year, but they only gave one option that was to reduce the premium. They had to regret the loss of one of their directors, Mr. Taylor, who died only a few months ago, and his place had been filled by the appointment of Mr. R. C. Antrobus to a seat at the board. He moved that the annual statement and directors' report be received and entered on the minutes.— Mr. DUNPHY seconded the motion, which was carried unanimously.

The quinquennial report was also adopted, and the retiring directors and auditors were re-elected.

A vote of thanks to the Chairman and directors, to the actuary, secretary, and staff, terminated the proceedings.

CATHEDRAL CONSOLS MINING COMPANY.

The four-monthly meeting of shareholders was held at the offices of the company, Drapers' Gardens, Throgmorton-street, on Tuesday,

Mr. JAMES LABY in the chair.

Mr. EDWARD ASHMEAD, F.C.A. (the secretary), read the notice calling the meeting. The accounts showed a balance of liabilities over assets of 1284*l.* 17s. 7d.

Mr. ASHMEAD then read the following report from the agents:—

April 5.—Since the last general meeting the engine-shaft has been sunk to the 84, plat cut, shaft divided, and plant down, with footway fixed, and the necessary pent-house for the safety of the men working below. At the 84 a cross-cut is being driven south to intersect the old mine lode, and is now south of the shaft about 4½ fathoms; this is being hastened on by eight men and four boys. Considering the importance of reaching the point as quickly as possible, as from the reports of the old agents we may expect to find copper in paying quantities. The 72 is driven east of shaft 24 fathoms; lode 4 ft. wide, composed principally of gossan, with occasional good patches of copper. The lode in this level is larger and more masterly than in the levels above at the same distance from the shaft. The lode in the 50, driving east, is 3 ft. wide, composed of quartz, fluor-spar, and prian, with a little copper ore, and the indications are such as lead us to expect an improvement here shortly. The water issuing from this end is highly charged with copper in solution, and we strongly recommend the continuance of this level; driven east 72 fathoms. Considering the future prospects, and having reached the depth so long looked for, and being free from the heavy incumbrances of the old mine water, the bottom of the mine should be wrought both east and west, and if possible the shaft sunk another 10 or 12 fms. deeper, when there is every reason to expect the points so wrought will yield mineral to pay cost, and relieve the shareholders of any further outlay.—STEPHEN DAVEY, STEPHEN DAVEY, jun.

Mr. ASHMEAD next read the following special report from Capt. Trevena:—

March 25.—In compliance with your request yesterday I inspected the above mine, and the following is my report thereon:—The engine-shaft is sunk on the course of the lode, which is embedded in granite, from the surface to the 84, where the lode varies in size from 2 to 3 ft., and composed principally of fluor-spar, quartz, and chloride, intermixed with a little copper ore, and has a very promising appearance. There is a marked change in the character of the lode in the last 10 fms. sunk, as I think it has got below the gossan, and, in my opinion, levels should be driven both east and west from the bottom of the shaft on its course, where, I have no doubt, ore will be met with in paying quantities, especially from the western drivage, as the dip of the ore taken away in the upper levels is inclining in this direction. The cross-cut, I find, is extended south from the bottom of the shaft about 3 fms. in a good-looking elvan course, which is driving by eight men, at 8*l.* 10s. per fathom. They have about 20 fms. further to drive to intersect the Old Mine lode, which I estimate will take about five months to accomplish. This of itself is a fine speculation, and should be pushed forward with vigour, which, if intersected rich, will probably place the mine in a paying position.

In the 74, driving east of shaft, the lode is 4 ft. wide, composed principally of gossan, and driving by six men, at 4*l.* 10s. per fathom. The 50 is driven east of shaft about 70 fms. For the last 30 fms. the lode is of a very soft nature, the matrix being gossan, quartz, and prian, which yields a little tin, but not in sufficient quantity to value. At surface you have a powerful engine, which will meet all your requirements for a deep and extensive mine, with all necessary drawing appliances. These with the pitwork, I find are in good order, and ample for all the water you are likely to meet with in this district. Your working cost is about 200*l.* per month, and, to develope the mine, I cannot see where it can be reduced—rather you ought to increase, could you see your way clear, by starting the two levels referred to above from the bottom of the shaft; otherwise, if you have to confine yourselves to the present cost, I would recommend the suspension, for the present, of the 70 and 50 ends, and remove these men to drive the bottom levels, where the chances of meeting with ore are far superior to anything seen at the shallow levels. By adopting this course and sinking the engine-shaft, if possible, I feel sanguine in a short time it will lead on to success. I may further say the money that has been already spent on this property has only taken you to the depth where you might expect to meet with ore, as these lodes were worked to about the 70 by former adventurers; and I find it was the opinion then (by looking at some of the old reports of some of our most experienced agents) that, by sinking some 20 or 30 fms. deeper, they were sanguine of having a good mine. You are arrived now at the depth where, by a little further outlay, the opinion of those old agents and my own are likely to be realised.—W. C. TREVENA.

The CHAIRMAN said that seemed a very favourable report. Capt. Trevena, who was an independent mining man, seemed sanguine of success, and it would be a pity to relinquish the mine now, when, with a little further outlay, they might bring it into a productive state.

Mr. WALTON said he supposed another six months would prove it. Would they get to the old mine lode in six months?——Capt. DAVEY said he hoped so. He could not tell the exact distance they had to drive at the 84. The only means they had of testing the underlay was at the adit level, where from the bearing of the lode we had laid it down about 24 or 25 fms. The end was in elvans, but at any day the ground might change for the better.

The CHAIRMAN formally moved the reception and adoption of the accounts and reports.——Mr. WALTON seconded the motion, which was carried.

On the motion of the CHAIRMAN, seconded by Mr. WALTON, a call of 2s. per share was then made, payable on April 30.

The relinquishment of certain shares by shareholders was then accepted, and the CHAIRMAN stated that he hoped by the next meeting they would be able to deal with those shares for the benefit of the mine.

Capt. DAVEY said the mine might become valuable almost any day; if they could strike ore they could commence stoping at once.

A vote of thanks to the Chairman and committee closed the proceedings.

NORTH PENSTRUTHAL MINING COMPANY.

The ordinary general meeting of shareholders was held at the offices of the company, Drapers' Gardens, Throgmorton-street, on Tuesday, Mr. JAMES PETRIE in the chair.

Mr. EDWARD ASHMEAD, F.C.A. (the secretary) read the notice convening the meeting and the minutes of the preceding meeting, which were confirmed. He also read the statement of accounts for the four months with the labour costs paid on Jan. 26. They showed that the labour costs amounted to 750*l.*, and the merchants' bills to 630*l.* There was a balance of liabilities over assets of 1009*l.* 3s. 8d.

Mr. STORY asked whether they had allotted any of the relinquished shares?——The SECRETARY replied that 650 of the shares had been allotted.

The CHAIRMAN said he had, as promised at the last meeting, taken his full share. He was now going to see the thing through, for it would not now take long to decide their position.

The SECRETARY read the following report from Capt. Davey:—

April 5.—Since the last general meeting we completed the fixing of the pumps, rods, &c., also fixed the balance-bob at the 108, all of which are answering admirably. Highburrow shaft has been sunk about 9 fathoms since the last meeting, and is down about 11 fathoms; the granite is of a good matrix, and will be pushed on to reach the 165 as quickly as possible. In another eight or ten weeks we hope to accomplish this work. The 150 is driven east 16 fathoms; lode 2 ft. wide, composed of quartz, capel, and chlorite. A part of this drivage has been through a lode varying in value from 6*l.* to 7*l.* per fathom; lode in the end producing good stones of tin. The 150 is driven west 30 fathoms; lode 2 ft. wide, composed of quartz, chlorite, capels, and producing rich stones of tin. A portion of this drivage also has been through a lode varying in value from 5*l.* to 7*l.* per fathom; the lode here is daily improving and letting water freely, indicating our near approach to the shoot of tin gone down in the level above; the tin ground mentioned in our last report is standing in the 132. Although the points have not turned out quite to our expectations during the past four months, we are still hopeful from the congenial nature of the rock that at the

next level we shall meet with a bunch of tin, as well as in the 150 west end. The mine is well ventilated to the 132, and after driving about 10 fms. further west at the 150 the ground will be sufficiently drained to put a winze down in the tin ground, and lay open the mine for stoping.—STEPHEN DAVEY, WILLIAM POLKINGHORNE.

Mr. STORY asked what reason the Chairman had for his continued confidence in the mine?——The CHAIRMAN: Nothing beyond what was stated at the last meeting. We cannot possibly test what we then referred to in less than six or eight months from that time. I will now move that the "accounts and the report now read be passed and adopted, and printed and circulated amongst the shareholders."——Mr. ARTHUR seconded the motion, which was carried.

Mr. WALTON remarked that the Chairman took up his proportion of the relinquished shares after his return from visiting the mine.

The CHAIRMAN: I have not much to say about North Penstruthal to-day. Its position at the present time is as nearly as possible what we expected when we met here in November last. The encouraging appearances at the 150, where the lode was cut shortly before that meeting, and in the 132, 37 fms. from the shaft, where a shoot of tin was driven through, led to a decision to sink as rapidly as possible to the 165, and to drive the 150 west to get under the tin seen in the 132. Since our last meeting the lode at the 150 has been driven upon, as stated in Capt. Davey's report, on the easterly end through 7 fms. of tin ground, worth from 6*l.* to 7*l.* per fathom, and on the westerly end through 3 to 4 fms. of tin ground, worth 5*l.* to 7*l.* per fathom. We have here, then, some 11 fms., or 22 yards, of a continuous course of tin, valued at 5*l.* to 7*l.* per fathom, warranting the conviction that we are on the top of a course of tin, and leading us to look for a considerable improvement when the 165 is reached. We think the points to which we have referred are sure to be reached and proved (as we stated at our November meeting) before the time for another meeting comes round, when the earliest information will be given to the shareholders. However North Penstruthal Mine may turn out, it is undoubtedly a bit of real, genuine mining, honestly and economically carried out, and I trust we may have to report some two or three months hence the success which in our opinion it deserves.

Capt. DAVEY pointed out the course of the operations, and expressed his belief that he would soon have something good to report to the shareholders.

A call of 4s. 6d. per share was made, payable on or before April 30.

The meeting then closed with a vote of thanks to the Chairman and committee.

SOUTH PENSTRUTHAL MINING COMPANY.

The ordinary general meeting of shareholders was held at the offices of the company, Drapers' Gardens, Throgmorton-street, on Tuesday, Mr. JAMES WALTON in the chair.

Mr. EDWARD ASHMEAD, F.C.A. (the secretary) read the notice convening the meeting, and the minutes of the preceding meeting, which were confirmed.

The accounts, which were read, showed a balance of liabilities over assets of 1802*l.* 9s. 9d.

The following report was read from the agent, Capt. S. Davey:—

April 5.—Since the last general meeting we have sunk Walton's engine-shaft about 8 fms., driven a cross-cut south 4 fms., and on the course of the lode east and west 4 fms. The shaftmen are now engaged sinking for bearers, cistern, &c., and making the necessary preparations for fixing a drawing-lift at the 114 fm. level. The cross-cut at the 114 was driven 16 ft. through a highly mineralised capel, bearing occasional stones of tin, the copper-bearing part of the lode is 6 ft. wide, composed of quartz, fluor-spar, chloriże, prian, and producing rich oxides and sulphides of copper. Judging from present appearances we are on the top of a bunch of copper, the lode being much better in the bottom of the level than in the upper part. The Flat-rod shaft is sunk about 13½ fms. below the 150, in a congenial granite for the production of copper. I would advise to continue the sinking to the 170 before cross-cutting to the lode, which we expect to reach in about 10 or 12 weeks. This will be about the depth where the rich runs of copper have been found in the adjoining mines. The 150 is driven west about 17 fms.; lode composed of quartz, fluor-spar, and capels, producing good stones of yellow copper ore. The part carried is from 5 to 6 ft. wide, and presenting a better appearance as we advance for a larger yield of copper, which is but reasonable to expect, looking at the fine mineral-bearing lode we have at the 114 in the engine-shaft. The general prospects of the mine are encouraging—even better than when you last met, looking at the great change wrought in this lode in both the 114 and 150 fm. levels. Our plant and machinery are in good order, and equal to the requirements of a deep and lasting mine.—STEPHEN DAVEY.

The CHAIRMAN said it would be remembered that previous to the last meeting they invited Captain Trevena to inspect the mine and to give a report upon it, and that report had been read at the preceding meeting. The committee had considered it advisable that they should again ask his opinion as to the present prospects of the mine, and such an inspection having taken place, he would ask the secretary to read Capt. Trevena's further report.

March 29.—In accordance with your request I beg to hand you my report of the above mine. Walton's engine-shaft is sunk about 9 ft. below the 114 fm. level. The shaftmen are now employed in cutting cistern piat, and making their preparations for sinking another lift. The granite in the bottom of this shaft is very congenial, and everything a miner desires to see for the production of mineral, and should be urged onward as fast as possible for a deeper level. The very fine lode just intersected in the 114 cross-cut, and opened upon about 4 fms. east and west, shows a decided improvement from the level above. The lode being altogether larger, and the ore-bearing part for about 6 ft. wide, is thickly sprangled with rich ore, and from the porous character of the lode, with its rich component parts, it is evidently making the change so long looked for in this mine. The Flat-rod shaft is sunk about 13 fms. below the 150, and would recommend this to be made a 20 fm. lift before the lode is again seen. This can all be accomplished within the next four months, and will be then at a depth where you may reasonably expect an improved and productive lode. In the 150, driving west of shaft (which is extended about 17 fms.) the lode is large and spare for driving, with occasional stones of copper ore. As this end is advancing the probability is that it will meet with the same porous lode as seen at Walton's shaft (114), if so it is very possible it will be found rich in copper. The above bargains are all that are at present working, and all that are necessary for the development of the mine; and I can only say, as I did on my last inspection, that I thoroughly agree with the manner in which the mine is being worked, and believe by urging on the above points you will eventually arrive at the ore, which will handsomely recoup you for your present outlay.—W. C TREVENA.

In reply to Capt. KENDALL, Capt. DAVEY said the engine-shaft would be sunk at the rate of about 3 fms. a month. They would have seen the lode again by the date of another meeting. At the last meeting the committee were urged to abandon the sinking of the engine-shaft, while he advised that the shaft should be sunk as quickly as possible, believing that they would reach something good. This had turned out to be correct. The lode was about 6 ft. wide in the bottom level, and was looking highly promising, as the staff on the table showed. In about four months they would reach a sufficient depth for another level, when they would drive out and cut the lode. The Flat-rod shaft was being sunk by boring machinery, but the engine-shaft was being sunk by hand labour.

Capt. KENDALL thought it would be important to the shareholders that the shaft should be continued, and that the lode should be tested as soon as possible.

Mr. GRYLLS supported this view, and suggested that all the encouragement possible should be given to the men.

Captain DAVEY said this was being done. It was hoped that from both the shafts the lode should be seen by the next meeting. In the Flat-rod shaft they had 6 fms. to sink, which would take about 10 or 12 weeks. They would then, unless the underlie of the lode changed very materially, have to drive about 16 or 18 ft.

The SECRETARY, in reply to Mr. ARTHUR, said that of the 932*l.* arrears of calls, only 273*l.* was due to any call before that made at the preceding meeting. The list was, he believed, a perfectly good one.

The accounts and reports were adopted.

The CHAIRMAN moved that a call of 6s. per share should be made, payable on or before the 30th inst.——Mr. JAMES LABY seconded the motion, which was adopted.

On the motion of Mr. WALLWORTH, seconded by Mr. STORY, a vote of thanks was passed to the Chairman and committee, and the meeting then closed.

CHILE GOLD MINING COMPANY.

An extraordinary general meeting of shareholders was held at the Cannon-street Hotel, on Tuesday,

Mr. JOHN HARVEY (the Chairman) presiding.

Mr. WRIGHT (the secretary) read the notice convening the meeting, and the report of the manager (Mr. Nicholson) was taken as read.

The CHAIRMAN said he would defer his remarks upon the manager's report until after the shareholders had heard the report of Mr. Wright, who had been out to the mine. They would remember that at the last meeting he told them that Mr. Nicholson (the manager) was likely to come back soon to England. Circumstances, however, occurred which in Mr. Nicholson's opinion rendered it advisable that he should not come home at that time, and subsequently, owing to the resignation of the sub-manager, he found he could not leave, as the mine would then be without a head. That was the reason which induced the board to send out Mr. Wright, in order to obtain a report as to the precise state of affairs. The second reason was that the expenses were enormously heavy, and while the board was aware what was the cost of sending out the machinery there were many other expenses respecting which they knew nothing. This was the chief reason why the board resolved to send out Mr. Wright, who had the confidence of the board, to bring home all the information in his power. He would now call upon Mr. Wright to read his report.

Mr. WRIGHT then read the following report:—

March 5.—I beg herewith to hand you a short general report on the company's property in Venezuela. I have not entered into statistics, as the manager gives all these in his annual report sent forward by this mail. I arrived at the mine on the 1st February, and was well received by Mr. Nicholson and the staff, and instructions were given to the officers to afford me all information and assistance I might require.—The Mine: I have been thoroughly through all the underground workings in both Nos. 1 and 4 shafts, sparing no pains in endeavouring to make myself master of their state and position.—No. 1 or Water Shaft: This shaft was very little worked by the Mocupia Company; but, until it was shut down for repairs, rich pockets of ore were come across from time to time. While the Potosi Company were working the Chile vein they extracted the principal portion of their rich quartz from this part of the lode to east of our shaft, and at no great depth below our present levels. The mine here is being rapidly opened out, and the acquisition by our company of the Potosi workings on the Chile vein will materially assist in its development. Mr. Nicholson reports that the Potosi shaft will require a certain amount of repair, but this will soon be effected, and having this new outlet to our mine, will obviate the necessity of our sinking a new shaft at a cost of some 10,000*l.* or more. There is plenty of quartz here, and in the month of January 850 tons were raised; but at present the rock in this portion of the mine is not as rich in gold as that in the Cenicero mine. Mr. Nicholson is of opinion, however, that when we sink deeper we shall encounter the large lode, some 16 ft. wide I think, latterly worked by the Potosi Company. It is quite true this company met with a pinch in the lode; but I am informed that when they stopped working they had got through it. There is a large amount of valuable quartz in the until lately disputed strip of land, now acquired by the Chile Company. The hoist at No. 1 shaft is too weak for the work required of it; but when the new one is put up Mr. Nicholson estimates that he will be able to increase the output of quartz from this shaft alone to from 1500 to 1800 tons monthly.=No. 4 shaft, Cenicero: The hoist here is, as at No. 1 shaft, quite inadequate to the work it is required to do, but it will shortly be replaced bya more powerful one. Here, again, our acquisition of the Potosi workings is very important; their mine can be pumped dry in three weeks, and that done we can, by driving some 30 ft. on our No. 5 level west, open communication with their shaft and workings. In this part of the mine I was much struck with the large stopes of available quartz, but what impressed itself upon me more than anything was the enormous amount of timbering, and the great size of most of the timber, the smallest being 12 in. square, and very many 22 in. by 16 in., placed in V's 5 ft. apart; in some places, where the ground is soft, the hanging wall is supported by timbers placed 18 in. apart. The timber required for the mine is a very large item in the expenditure, costing during the year 1883 360*l.* per month; to this must be added the great expense of hauling these heavy logs, the specific gravity of all being greater than that of water, along levels some 400 ft. from the shaft, and up stopes 100 ft. high in places, all this of course being done by hand. The mining captain estimates that we can turn out at present from No. 4 shaft alone sufficient quartz for all our requirements with 60 stamps, and that when the western stopes are opened up (say in three months) the amount can be largely increased. The average number of men sent down this part of the mine in a watch are—miners, 24; pasadores, 15; timbermen, 8; pumps, 4; corporals, 2: total, 53. Drilling is paid for at the rate of 3s. 2d. per foot, the company furnishing the men with explosives free of cost. Greater progress and more economy is anticipated when the rock-drills are at work. Mr. Rouse, the engineer, believes he can arrange a carriage by which the drills can be used on the stopes as well as for driving. There is no doubt our rock is at present comparatively poor, compared with that of Callao, and our prospects of making the concern pay rest upon our being able to deal with large quantities. There is an unlimited supply of quartz in the mine, and we could in a short time, when the new hoists are in place, supply a much greater number of stamps than at present, and in addition, accumulate large stocks at surface. The poor returns in December and January were due in a great measure to the scarcity of miners, but these have now returned; no further trouble on this head need be anticipated.—No. 5 Shaft, Austin No. 9: This shaft is down about 80 ft. on the lode, and is the finest shaft I have seen in the country. The sinking is progressing very slowly for want of hoisting power, a mule being used at present. A steam hoist will shortly be erected, when the shaft will be put down morr rapidly.—The Mill—Stamps: The whole of the stamps appear to be thoroughly well erected, and to do their work well. The Corliss engine, the finest yet erected in this country, commenced running on Feb. 21, and works most satisfactorily. The larger old mill engine will be removed to No. 4 shaft, and the smaller one kept in its present position as a reserve, in case it should be necessary to stop the Corliss at any time; this small engine drives 25 stamps easily.—Mill Floor: This is, and will be for some time, in a state of transition, as Mr. Nicholson contemplates removing the large engine, the two Leslie boilers, and the Wells steam-pump, and in the room thus afforded to erect Morris's amalgamators, and other appliances for treating sulphurets. The mill is crowded into a corner, with very little space for extension, but by contriving, 30 to 40 additional stamps could be put up, but no more, except by removing the two Cornish boilers lately put up.—Tailings and Sulphurets: No machinery has yet been erected for the treatment of sulphurets, as up to the present all attention has been directed to saving the free gold. The Morris amalgamator and Hendy's concentrators are on the spot, and will not cost much to erect, and Mr. Nicholson proposes putting up two of the former and five of the latter as soon as the mill floor is clear. The loss of gold in the tailings, some 6½ dwts. per ton, is due to the large quantity of sulphurets they contain. The manager of a neighbouring mine informed me he losses 7 dwts., and believe at the Callao they lose 16 dwts From what I can see and learn i believe but small results should be counted upon from the treatment of our sulphurets. No one in this country appears ever to have obtained any practical results, and all attempts up to date to treat sulphurets have been merely costly experiments.—Water: Owing to the admirable system of tanks constructed below the mill only 20 per cent. of the water required for the whole works has to be pumped from Yagual, the remaining 80 per cent. being the return water supplied by these tanks. Unless an exceptionally dry season should come there appears to be plenty of water for 80 stamps. Great credit is due to Mr. Nicholson for the arrangement of these tanks, which though costly to build have saved the necessity of laying the 6-in. pipes from the Yuruari, 4½ miles distant, which would have cost a very large sum. At present the water from Yagual is pumped through the old 3-in. piping, which is in an unsatisfactory condition, and Mr. Nicholson is very anxious to relay this line at once with the 6-in. pipes now at Ciudad Bolivar.—Firewood: At the mill we were using up to lately some 25 cords per diem, costing very nearly 2*l.* per cord delivered, which at 27 working days per month amounts to 1350*l.*, a most alarming item of expenditure. The Corliss will probably consume at least a third less, and in that case it will soon pay for itself. It will be understood that the "cords" here are Spanish cords=83·13 cubic feet English, as against 128 cubic feet, the measurement of the American cord. The Corliss engine is at this moment running 60 stamps at the same cost as 20 stamps were run when the mine was first taken over, and when the large shaft pulley is placed in position a further reduction in the cost is anticipated.—Machinery: A considerable portion of this is in a state of transition, and I am informed that since the mine was purchased it has been one continual patching up and removal; indeed, the engineer, Mr. Rowse, says if it was not for the delay it would have occasioned, it would have been far cheaper to have thrown the machinery purchased with the mine on one side, and to have replaced it by new. He further informs me that through pressure of work he has been unable to apply indicating gear to the small engines, and, therefore, no indicated horse-power has been given up to date. Practically all our machinery is of English manufacture, and gives most satisfactory results as compared with the American machinery with which the country has been flooded. The following are the works contemplated during the next six months with reference to the erection and repairs of machinery:—1. Repair and erection of small provisional hoist at Austin No. 9 shaft.—2. Repair and removal to Cenicero of old mill engine, and erection of surface gear for mine pumps.—3. Erection of new air-compressor.—4. Preparing foundations for and erection of new hoists.—5. Sulphuret gear.—6. Repair of Cenicero boiler.—7. Alteration of two old boilers at Yagual.—8. Erection of new Cornish boiler at mill.—Boarding-house: At present some 47 persons are in two separate houses, boarded at the expense of the company—*i.e.*, manager's house—officers, 10; mess, 14; assistant to doctor, 1; hostlers, 2; cook, 1; assistant cook, 1; servants, 4; housekeeper, 1; 34. Cenicero house—miners, 10; cook, 1; servant, 1; boy, 1; total, 47. Taking into account the pay of servants, each white man costs the company about 150*l.* per annum, in addition to his pay. The total cost for 1883 was 4500*l.*; this is a very heavy item, but as far as the actual living is concerned I must admit I see little room for retrenchment; the food is plain and simple, with no wine or spirits. Beef, the cheapest thing, is 1s. per lb.; eggs, 7½d. each; a cabbage, 5s.; a duck, 15s. The cook, a Trinidad negro, receives 12*l.* per month and his food, and he does not seem very anxious to stay, even on those wages. It would no doubt be cheaper were the men to board themselves, but it is a question whether the interests of the company would not suffer in the end. The climate of this country is very peculiar, and men run down very quickly, especially if not well fed. The native cookery is, I really believe, the worst in the world, and if the men were to board out they could not get food fit to eat their health would suffer, they would lay up, and the company would lose their services. The houses on the land, purchased from the Potosi Company will be most useful for our skilled English workmen. When I was at the mine they were sleeping three in a room, a very undesirable thing in such a climate. Regarding the officers, very little money has been spent upon making them comfortable; they all sleep under one roof, and are much crowded. The land is suitable for growing anything, and a garden has just now been started to supply the men with vegetables. This might have been done at the commencement, but as all labour out there is most costly it was postponed in favour of things more pressing.—Staff: In its officers I consider the company is well served. They all appear hard-working, quiet, and temperate, and to have the interests of the company at heart. I would specially mention Mr. Rowse, the chief engineer; Capt. R. Pearce, mining captain; W. H. Pope, amalgamator; and Miguel Palacio, draughtsman and surveyor. These are competent and zealous officers, and there are no better men in the country. Mr. Littell, the young man sent out by the board to assist in the accountant's department, though ill when I left, promises to turn out very well, and Mr. Nicholson speaks well of Mr. Wates, the assayer. Regarding Mr. Nicholson, the manager, I must say that he is untiring in pushing the development of the mine, and that he deserves the greatest credit for the energy and skill with which he has carried out, in the face of great obstacles, the many important and heavy works necessary to work the mine on a large scale.—Medical Department: Since my departure from England I observe the board has sanctioned the appointment of Dr. Boomer, lately in charge of the engineers employed by the Guayana Company on the survey of the railway from Orinoco to Guacipati, as medical officer. Considering the unhealthiness of the climate, it is highly desirable to have an English doctor on the spot, and Dr. Boomer, from his long residence in tropical climates, is a very suitable man for the post. The department is partially self-supporting, as a deduction is made from the pay of every coloured workman towards the sick fund. Dr. Boomer has been in the habit of buying his medicines in the country, but this is too expensive a proceeding, and I have requested him to indent for his requirements from time to time.—Accountants' Department: This is in good hands, Mr. Aikman thoroughly understanding his work, and his books and accounts are thoroughly well kept. His assistant, Mr. Littell, has been ill for some time, which has delayed the yearly accounts, but the bulk of them go by this mail.—Labour: This is most costly, as we are entirely dependent on negroes from the West India Islands, there being practically no working population in Guayana. Several new mines having lately been started in the neighbourhood of ours has had the effect of increasing wages. We have at this moment as many men as we require, but to keep them we must, of course, pay as much as our neighbours. I will mention here the pay we have to give the various coloured men in our employ:—Negro blacksmith, 12s. 6d. per diem; English ditto help, 11s. 1d. per diem; negro carpenter, 16s. per diem; negro mason, 11s. 9d. per diem; negro sawyer, 17s. 6d. per diem; common labourers, 8s per diem; common labourers, 7s. 6d. per diem; English woodman, 14s. 6d. per diem; negro millman, 12s. 8d. per diem; negro engine driver, 12s. 8d. per diem; negro feeder, 10s. 6d. per diem; negro corporal, 19s. per diem; negro timbermen, 14s. 3d. per diem. It would no doubt be advantageous if Chinamen could be introduced into the country, but although the company would save considerably in the end, the first outlay would be so great in the present state of our finances we can do nothing in the matter. When I was in Caracas I spoke to the President, General Guzman Blanco, concerning the introduction of Chinamen. He replied, the Government would have no objection to their introduction, but said nothing about a treaty with the Chinese Government, which I believe is necessary previous to the Chinese authorities permitting their coolies to emigrate. One great cause of the dearness of labour at the mine is the enormous rent the workmen have to pay. I am not speaking of the English workmen, as the company house them, but of the negroes. I think I am within the mark when I say that house property in the hands of private individuals at the mine pays at least 50 per cent. upon the capital invested, the smallest hole, often without a window, fetching an enormous rent. It would be most advantageous if the company could house all their labourers; but to do this the first outlay would be so great that it is not to be thought of at present. Another thing that would also pay the company well, and tend towards the reduction of the cost of labour, would be the establishment by the company of a store or shop to supply the workmen's requirements. The bulk of the men's pay goes into the hands of the local shopkeepers, who charge them ruinous prices for everything, and the men in consequence demand higher wages.—Railway: Regarding the railway from the Orinoco to Guasipati, the survey of which has been completed by the engineers of the Guayana Company, I was agreeably surprised at the comparatively easy country over which the railway would have to pass, nearly two-thirds being through Savannah. There is no doubt this railway, when completed, will be of enormous advantage to the mines, and will earn large dividends for its shareholders. There are no engineering difficulties in the way, and it ought to be a cheap line to make. In conclusion, allow me to say that the impression made upon me by my visit to the mine is that now we have a grand mine, well opened out, and in good order, and that we shall in a few months be in a first-rate position, able to produce any quantity of quartz, and at a cheaper rate than hitherto. The present year should conclude all works on capital account, and when Mr. Nicholson has completed the works he mentions in his report, I do not see there remains anything to be done but for him to confine his attention to mining the quartz, and passing it through the mill. It must be borne in mind that we only worked during 1882 with an average of 42 stamps, and I think there can be no reason to doubt that with the unlimited supply of quartz which undoubtedly exists in the mine, we can in future, even with poorer quartz than the average up to the present, always earn a certain dividend on the capital proportionate to the number of stamps erected.

The CHAIRMAN said, having heard Mr. Wright's report, no doubt many of the shareholders would like to put questions upon it, but before they did he would make a few observations. In the ordinary course the manager's report would not have been presented until the board was in a position to present the accounts for the past year, but knowing how anxious the shareholders were to obtain every information the directors thought this a fitting occasion to give them the manager's report in the state they received it. They would bear in mind that this emanated solely from the manager, and that there might be some alterations in the accounts when they were submitted to the shareholders. If they looked at the second page of the report they would find the comparative statement of the cost of production, for of course the expenses were to a certain extent comparative. They could not compare the cost of the work in Venezuela or Guayana with the expense of similar work in this country, but it must be satisfactory to the shareholders that the cost of the work in the Chile Mine was greatly less than in the Callao. (Hear, hear.) They were turning out much more quartz, although their returns were not nearly equal to the Callao. Mr. Nicholson asserted, and his prophecies had hitherto turned out correct, that the lower down they went the richer would become the quartz. They would see from the report that much remained to be done, and the board believed that the time had now come when the balance of 10,000*l.* debentures should be subscribed. They were of opinion that it was advisable to continue to improve the machinery, and place the mill in an efficient condition, so that at the end of this year nothing might remain to be done except to coin money. (Applause.) If, however, the shareholders did not come forward and subscribe the debentures they must do the best they could, but the profits would not be so large as if the debentures were subscribed. They would have some idea of the expensive nature of the works in Guayana from the fact of the erection of the two Cornish boilers having cost 4177*l.* 7s. 4d., the original cost in this country having been 560*l.* The Corliss engine, which Mr. Wright referred to in the report, would no doubt cost from first to last 7000*l.* It would be satisfactory to know this engine was running 60 stamps at the same expense of fuel as was used for 20 stamps when the mine was purchased. When they took this fact into consideration it would be conceded that the board was justified in incurring this outlay, and he believed that the other expenses could be calculated at a similar ratio. There were certain bits of machinery which had been ordered in this country, and which would have to be sent out, and if the board were supplied with the money for the 10,000*l.* debentures they would be sent out at once. There was no doubt that the year 1883 would show a profit after paying all expenses, including debenture interest, and this considering all the circumstances when the board took possession of the mine was something to be proud of. They would see 3500*l.* put down as the probable expense of No. 4 shaft, from which they had hitherto drawn the largest amount of quartz. He would now refer to the dispute with the Potosi Company. That company handed over to them certain ground which was valueless to them, but which was very valuable to this company, as it would enable them to have another shaft between Nos. 1 and 4 shafts, which would be available for all necessary purposes, and enable them to raise a sufficient quantity of quartz. He was very glad to say that their dispute with the Potosi Company had been satisfactorily settled, and that they were on amicable terms with them. He was sorry the action was ever brought by the Potosi Company, because it had cost a considerable sum of money, which had to come out of the pockets of the shareholders. The board had received advices from Caracas that the Nacupai people had lost their action in the Court of Appeal. They brought the action against this company, and had put them to a good deal of expense, but he believed they would have to pay the expenses of that action. The board considered it advisable to send out all their machinery of English manufacture, and he thought they were to be congratulated on their foresight in so doing, when from the report of Mr. Nicholson it was seen that the wear and tear of the Callao machinery obtained from America was so very much greater. As regarded water, every necessary arrangement had been made by Mr. Nicholson, who had provided large tanks by which they recovered 80 per cent. of the water they used and were able to use it over again, and they would have enough water to drive 100 stamps. It seemed to him (the Chairman) that they had been wonderful prophets of the amount of gold produced. They had expected to obtain 30,000 ozs., but the yield had been 31,453 ozs. (Applause.) The returns would have been larger but for the absence of miners in the months of November and December. This, however, would not occur again, as Mr. Nicholson had erected shutes to hold from 6000 to 9000 tons of quartz, sufficient to keep the mill going in case of any such emergency in future. They might expect a considerable decrease in the price of fuel, as the Corliss engines worked much more economically than others. All the expenses, as Mr. Wright said, had been incurred in improving the property for the benefit of the shareholders. Fortunately the acquisition of the Potosi workings and lands gave them four additional houses, and he had good authority for saying that the sum paid would not have erected those houses bad as they were. He did not know that he had anything more to add. When the accounts were audited he would ask the shareholders to meet the board again. He should be happy to answer any questions, because the board wished the shareholders to know as much about their property as they did themselves. (Applause.)

The CHAIRMAN, in reply to questions put by Mr. LYSLEY, Mr. SMITH, Mr. GREVES, &c., said: In reference to the Potosi and Nacupai actions, the cause of the dispute in the former case was a claim for the right of roadway through the middle of their property, and in the latter to a piece of ground sold to them by the original vendors. They had received a cablegram to say that the Nacupai suit had been decided in favour of the Chile Company. (Applause.) They had an inspecting engineer, but the flaws in the connections of the engines were such as would have been impossible for him to discover before they were sent out. The stone crusher was furnished by Marsden, of Leeds, whose name should be a guarantee for its quality. As regards the sinking, that would now go on more rapidly than before, certain deficiencies having been rectified. With respect to the erection of a store, the board thought it better to put the mine in thorough order before building more houses. The cost of administration was high, but the shareholders must bear in mind that the cost of working 60 or 100 stamps would in the future be little more than had hitherto been the case in working 20 or 40. As regarded the debentures the board had taken up their proper proportion, and had the shareholders done the same he would not now be asking them to subscribe the remaining 10,000*l.* He believed no director had parted with any of his holding, but on the contrary, most of them had increased theirs. (Applause.)

Mr. PONTIFEX spoke to the excellence of the machinery; the Corliss engine particularly he spoke of as being effective.

Mr. ROCHFORT bore testimony from personal knowledge of the mine to its great value. It was one of the most valuable mines out there. (Applause.) In Mr. Nicholson they had a first-class engineer. It was a very rich country, but coffee and cotton plantations were going to ruin for the want of labour. The carrying out of the proposed railway would rectify all this. When the railway was made their dividends would be very largely increased. (Hear, hear.)

Votes of thanks to Mr. Wright for his able report, to the Chairman and directors, and to the engineer and staff terminated the proceedings.

WHEAL AGAR.—At the meeting on April 4 (Mr. C. Bawden in the chair) the accounts showed a profit of 1717*l.*, and the call of 30s. per share made at the previous meeting more than covering the mine's indebtedness there appeared a credit balance of 1744*l.* A dividend of 5s. per share was declared, and the Chairman stated that it was proposed to deduct the dividend from the second call due from a portion of the shareholders. The report of the agents having been read, Capt. Trevena said that he thought it was sufficiently good for any mine. Mr. Bone asked what had been the average produce during the past three months? Capt. Trevena: 78 lbs. Mr. Hamilton put several questions to Capt. Trevena, and expressed his opinion that the management did not keep pace with the times. Capt. Trevena was the manager of two mines. He thought Capt. Trevena should be more energetic, and display more attention. There had been breakages, and he had been told that had there been proper attention these breakages would not have taken place. Mr. Hamilton enquired what description of coal was supplied them in that mine?—Capt. Trevena said that on the whole the coal was favourable. They at times had inferior coal. Mr. Hamilton observed that it should be the duty of an agent to tell the shareholders of the fact should the coal not be up to the mark.—The Chairman intimated that East Pool having 12 months' since given notice that their contribution to the water charges of Wheal Agar would cease it was for them to take steps in the matter. Wheal Agar had to bear much expense in respect of water, whilst East Pool was a dry mine. The payment from East Pool had been at the rate of 500*l.* a year, but the contribution for the 10 years had been about 36*l.* per month. Messrs. T. B. Bolitho, W. M. Grylls, Thomas Hamilton, J. G. Bone, the purser, and the manager, were appointed a committee to consider the question, and to take such steps as might be considered advisable. A vote of thanks having been passed to the agents and the purser, Capt. Trevena referred to the prospects of the mine. As they extended their operations eastward they might get an increase of water, but he believed they would have a large deposit of tin. The shareholders need not be anxious as to the future of the property.

HOLLOWAY'S PILLS—DISMISS YOUR DOUBTS.—Let no one be longer oppressed with the notion that his malady is incurable till these purifying pills have had a fair trial. Where ordinary preparations have failed these pills have been used with the most marked success. A course of this admirable medicine clears the blood from all impurities, and improves its quality. The whole system is thus benefited through the usual channels, without reduction of strength, shock to the nerves, or any inconveniences. The weakest woman and the most delicate child may fearlessly resort to this cooling, corrective, and withal, strengthening medicine, which works the most beneficial changes where health seemed helplessly lost.

FOREIGN MINING AND METALLURGY

Business has shown no material improvement in the French Iron Trade. The great French railway companies have not been giving out any important orders of late. It appears to be decided that the company owning he Creusot Works shall take over the St. Nazaire Steelworks. The condition of the German iron trade is considered to haveslightly improved, but there has been no decided revival in affairs. All that can be said is that previous rates have been a little more firmly maintained, as well for pig as for iron plates and rolled products generally. The production of pig in the Zollverein in January amounted to 273,375 tons, as compared with 269,220 tons in February, 1883. The production for the first two months of this year was 553,437 tons, as compared with 548,215 tons in the first two months of 1883, showing an increase of 5222 tons this year. The house of Gatchoffnung, of Oberhausen, has just taken 83 tons of fish-plates at 7*l.* 4s. per ton. The Union, of Dortmund, has contracted for a lot of locomotive tyres at 12*l.* 15s. per ton. We learn from Bilbao that the demand for Spanish iron minerals has continued to suffer from the prolonged depression in metallurgical affairs. In the Gijon district the local ironworks are contending courageously against foreign competition, especially German competition; and in order to encourage native consumption they are accepting very moderate prices.

The condition of the Belgian Iron Trade has not experienced any material improvement; on the other hand matters have not changed much for the worse, although stocks are increasing at some of the works. The demand for pig has been reduced of late, and in consequence of the difficulty experienced in disposing of their production it is not very easy to see how certain furnaces can be kept in blast. At Charleroi several furnaces have been blown out, and the situation has been proportionately relieved in consequence; nevertheless the market still remains heavy upon the whole. English casting pig has made little more than 2*l.* 2s. 6d. per ton. Luxembourg has brought about the same price. Prices have shown firmness at Liége, but no important transactions have been concluded. Iron has been held at a minimum of 4*l.* 16s. per ton for No. 1, while No. 2 has brought 5*l.* 2s., and No. 3 5*l.* 8s. per ton. As regards girders 5*l.* per ton can scarcely be regarded any longer as a minimum. No. 2 plates have maintained their old level of 6*l.* 6s. per ton, while No. 3 have made 7*l.* 2s. per ton, plates of commerce bringing 8*l.* 14s. per ton. The Union Syndicate of Brussels has just offered a prize of 200*l.*, to be awarded by a jury, for the plan regarded as the best and the most practicable for making Brussels a seaport. At an adjudication in connection with rails required for the Dutch State Railways a tender submitted by Messrs. Bolckow, Vaughan, and Co. (Limited) was higher than the offers made by Belgian and German firms.

The general condition of the Belgian Coal Trade has not materially varied. This may be regarded as a good augury at this period of the year, as spring generally brings reductions of price in its train. A strike which recently occurred in the Anzin district has certainly had the effect of imparting great temporary strength to affairs. The Borinage, the Flénu, and the Charleroi district have been enabled, in consequence of this Anzin strike, to find outlets for all their stocks, and even districts which have not profited from the special demand which has arisen have been benefited by it indirectly. It is right to remark, however, that the advantages which Belgian coal-owners have gained in the shape of increased deliveries to France has been partially lost through a strike among the glassmakers in the Charleroi group. This latter difficulty would have been attended with serious results but for the Anzin strike; as it is, quotations have been maintained with scarcely any change, although household coal has been neglected in consequence of a recent prevalence of mild weather. The German coal trade has shown no material change during the week. The extraction of coal in the Breslau district increased last year to the extent of about 7½ per cent. The deliveries expanded to the extent of 8½ per cent. The value of the coal sold also increased last year to the extent of nearly 8 per cent.

GAZETTEER OF CORNWALL.—Reference is made to an advertisement in another page of a forthcoming work by an old correspondent of the *Mining Journal*, Mr. R. Symons, of Truro, entitled "A Gazetteer of Cornwall." It is not doubted that the want of such a work (so obviously needed) will be fully satisfied. It will contain the name of every parish, farm, village, villa, hamlet, mansion, mine, railway, &c., also a treatise on the geology of the county, the names of the chief promoters of mines, and a great amount of useful information on all county matters. It is cordially hoped that the readers of the Journal will patronise the author, who has devoted much time and expense in the accomplishment of his undertaking.

THE COAL TRADE.

Mr. J. B. SCOTT, the Registrar of the London Coal Market, has published the following statistics of imports and exports of coals into and from the port and district of London by sea, railway, and canal during March, 1884:—

IMPORTS.

By Sea.	Ships.	Tons.	By Railway and Canal.	Tons.	cwt.
Newcastle	194	183,169	Lond. & N.-Western	121,825	2
Sunderland	117	87,543	Great Northern	90,017	0
Seaham	28	18,592	Great Western	79,076	0
Hartlepool	51	28,437	Midland	193,160	0
Middlesborough	1	145	Great Eastern	66,052	3
Scotch	11	4,503	South-Western	7,056	13
Welsh	40	33,756	South-Eastern	1,524	5
Yorkshire	24	6,460	Grand Junction Canal	573	10
Small coal, cinders	22	5,032			
Colonial	—	—			
Total	488	365,637	Total	559,284	13
Imports—March 1883	375	299,456	Imports—March 1883	586,247	19

Comparative Statement, 1883 *and* 1884.

By Sea.	Ships.	Tons.	By Railway and Canal.	Tons	cwt.
Jan. 1 to Mar. 31, 1884	1444	1,150,792	Jan. 1 to Mar. 31, 1884	1,677,543	12
Jan. 1 to Mar. 31, 1883	1303	3,032,764	Jan. 1 to Mar. 31, 1883	1,669,550	16
Increase—1884	141	68,028	Increase—1884	7,992	16

EXPORTS.

Railway-borne coal passing "in transitu" through district	Tons	96,234
Sea-borne coal exported to British possessions, or to foreign parts, or to the coast	87,975	
Ditto sent beyond limits by railway	24,196	
Ditto by canal and inland navigation	1,511 =	113,682
Railway-borne coal exported to British possessions, or to foreign parts, or the coast	45,787	
Ditto by canal and inland navigation	166 =	45,953
Sea-borne coal brought into port and exported in same ships		1,238
Total quantity of coal conveyed beyond limits of coal duty district during March, 1883		257,157
Ditto, during March, 1883		232,592

Comparative Statement, 1883 *and* 1884.

Total distribution of coal from Jan. 1 to March 31, 1884		774,903
Total distribution of coal from Jan. 1 to March 31, 1883		708,117
Increase in the present year		66,786

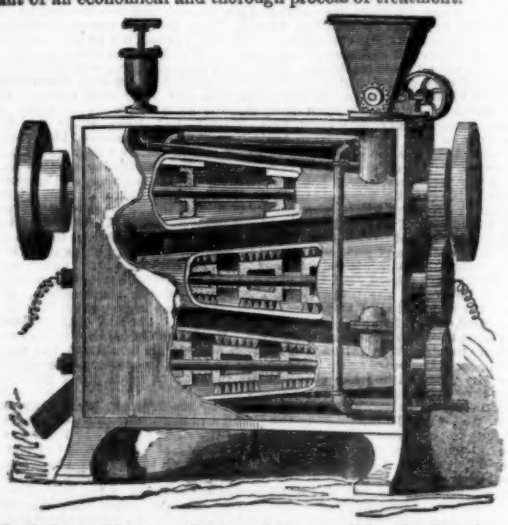
General Statement, 1883 *and* 1884.

Increase in coals imported by sea during present year	68,028	
Ditto, ditto, by railway and canal	7,992 =	76,020
Less increase in coals exported		66,786
Total increase in trade within the London district during present year		9,234

NOVEL ELECTRO METALLURGICAL MACHINE.

PROFESSOR JAMES MANES AND SONS call the attention of miners, mineowners, capitalists, and others interested in the working of gold or silver mines to their new Electro Metallurgical Machine for extracting fine and rusty gold from sands or tailings of stamp mills, or the sands of hydraulic gold diggings, or from the black sands on the coast of Oregon or California, and other parts of the world where gold is found.

The problem that has long troubled the worker of free-milling gold and silver ores is a method to save the mineral now lost in the tailings of stamp mills or flumes. This alone, if it could be saved, would amount to many million dollars profit each year, besides enabling the working of much territory which is now lying idle for want of an economical and thorough process of treatment.



Prof. James Manes and Sons, of Denver, Colorado, U.S., have invented a machine (represented in the above engraving) which it is claimed will save nearly the entire amount of mineral which passes through it, the loss not being over 10 per cent., and in many cases not in excess of half that amount. The machine is a cheap and practical process—it never need stop for charging or cleaning up, being nearly self-acting. Steam, electricity, and mercury are used in the process of extracting the mineral.

This machine or amalgamator is adapted for free-milling gold or silver ores, or refractory after roasting. It consists of a series of three or more large cylinders, wider at one end than the other, placed one above the other in a horizontal position, a shaft or spindle running through the centre of each.

The ore and mercury are fed into the first cylinder, passing into the second, and then to the third. The first cylinder is furnished with steel mullers which nearly touch the sides of the cylinder, and revolve at a good rate of speed, mixing the mercury and ore. The second cylinder is furnished with large steel brushes attached to the shaft or spindle, revolving at a high rate of speed; through this a current of electricity is furnished by a Westinghouse dynamic electro machine, which materially assists in gathering the particles of very fine gold together, and thoroughly amalgamating the metal and mercury. The third cylinder is similarly furnished to the second; into this the amalgam passes, and is again acted upon and mixed by the brushes to catch any gold which might have escaped amalgamation in the second. A fourth cylinder may be used if found necessary.

The amalgamated pulp then passes through a revolving copper drum, plated with quicksilver inside. As the drum revolves it takes up the most part of the amalgamated gold. As the inside of the drum is constantly washed with a spray of water from perforated pipes fixed inside of said drum, a clean-plated surface is constantly brought in contact with the pulp or tailings as it passes out from the cylinders. After leaving the drum it falls down on to incline copper plates, the same as is now used in stamp mills.

The amalgam can be collected from the drum and plates without stopping the machine, and any live quicksilver that passes will be caught in syphons. The tailings are carried off with the water. The machine when attached to the flume will be driven by the waste water; it sifts the fine sands from the coarse gravel, and amalgamates it as above.

The specific points claimed by Prof. Manes and Sons in their patent are—

1.—The saving of almost all the mineral passing through the machine.

2.—The loss being less than 10 per cent.

3.—The entire absence of loss of the amalgamated material, thereby saving all the mercury, which, with the processes now in use, there is a large loss both of mercury and the precious metal.

4.—The small cost per ton at which the ore can be treated.

By the addition of the powerful current of electricity that passes off the revolving brushes, the most minute particles of gold will be caught and retained, which in the ordinary flume and stamps passes off with the water; this often amounts to a large percentage.

The inventors state that if English stock companies will give their assistance to work the black sands of Oregon and California by paying for the building of the machines, they will take a share of the gold for their services, or they will send their machines to any part of the world, or will sell patent rights to those desiring any of their patent machines or revolving furnaces for roasting or smelting ores, ball pulverisers, &c.

Prof. James Manes and Sons are agents for the Morey and Sparey Ball Pulveriser, that crushes and pulverises at the same time, and does as much work as eight stamps in a day, crushing either wet or dry.

PRINCIPAL OFFICE OF

Prof. MANES and SONS,

No. 372, Glanarm Street, Denver, Colorado, U.S.A.

All our machines and furnaces are made by the Colorado Iron Company of Denver, Colorado, the most extensive mining machine works in America.

Just published, price 7s. 6d., post free.

TABLES FOR ASCERTAINING THE PRICE OF TIN ORE AT A GIVEN STANDARD AND PRODUCE:

To which is added Tables for Ascertaining the Value of any Quantity of Black Tin, from 1 lb. to 10 tons, at any price from £20 to £100 per ton.

Originally compiled and calculated by the late Mr. R. WELLINGTON; and now extended, reprinted by Mr. W. BAILEY, of Camborne, and carefully verified throughout.

London: MINING JOURNAL Office, 26, Fleet-street, E.C.; and may be had by order of all Booksellers.

Australia: GEORGE ROBERTSON, Melbourne, Sydney, Adelaide, and Brisbane.

Just published.

THE NORTH WALES COAL FIELDS

Being a series of Diagrams showing the Depth, Thickness, and Local Names of the Seams in the principal Collieries of the various districts, with Index, ecological Map, and horizontal sections across the Ruabon, Brymbo, Buckley, and Mostyn districts.

By JOHN BATES GREGORY and JESSE PRICE, of Hope Station, near Mold, Flintshire.

Price: Mounted on holland, coloured and varnished, and fixed on mahogany rollers, 30s. each; or in book form, 12×9, mounted and coloured, 25s. each

May be obtained, by order, of all Booksellers, or direct from the MINING JOURNAL Office, 26, Fleet-street, London, E.C., upon remittance of Post Office Order for the amount.

SILVER MEDALS AWARDED AT CORNWALL POLYTECHNIC 1872 AND 1876.

THE WELL-KNOWN PATENT SELF ACTING ORE DRESSING MACHINERY, as in operation at most of the large Mines in the Kingdom and Abroad, is now supplied solely by THE PATENTEE AND MANUFACTURER, Mr. GEORGE GREEN Mining Engineer, AT GREATLY REDUCED PRICES also all descriptions of Mining Machinery, including GOLD AND SILVER AMALGAMATING MACHINERY, complete Stamp Mills, Water Wheels, Steam Engines, &c.

ROLLER SHELLS FOR CRUSHING MILLS—a speciality

SPECIAL DESIGNS FOR EXPORT AND DIFFICULT TRANS

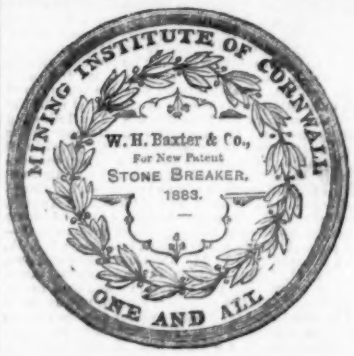
Prices and particulars on application to the Manufactory ABERYSTWITH, SOUTH WALES

MONEY LENT, at EIGHT, NINE, and TEN PER CENT., on FIRST MORTGAGE of FREEHOLDS for IMPROVEMENTS and STOCKING, said freeholds in the Province of MANITOBA.

Address, HERBERT C. JONES, Solicitor, 20, Masonic Hall, Toronto

ALSO AWARDED GOLD MEDAL AT CALCUTTA EXHIBITION.

BAXTER'S PATENT KNAPPING STONE BREAKER.



1881.

FACTS SPEAK FOR THEMSELVES.

To Mr. Baxter, Leeds. *Cinderford, Feb.* 13, 1883.

DEAR SIR,—I am pleased to be able to tell you that the Machine works splendidly. We are breaking 16 trucks a day now, and we thought it a good day's work to do 10 a day with the old Machine, so you can see the difference. I had a gentleman looking at it yesterday, and he was surprised to see it work so easily. Yours truly, E. ORGAN.

The above refers to one of our 16 by 9 Machines we supplied to replace an "Improved Blake" 15 by 9 Machine. Several of which have already been replaced by Baxter's.

PATENTEES AND SOLE MAKERS,

W. H. BAXTER & CO., ALBION STREET, LEEDS.

BRAUN AND BLOEM'S

CELEBRATED

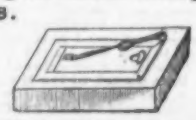
DETONATORS—"EAGLE" BRAND.

TRADE MARK.

The most powerful Percussion Caps for exploding Dynamite, developing its fullest strength.

PACKED IN THEIR PATENT TIN BOXES.

PATENT No. 3665.



A new invention, doing away with the very dangerous operation generally in use of inserting cutting tools when it is necessary to open the outer tin box.

Sold by WM. BRODERSEN, 79, Leadenhall-street, London, E.C.

SOLE AGENT FOR THE UNITED KINGDOM AND THE COLONIES.

BELL'S ASBESTOS.

BELL'S PATENT ASBESTOS BLOCK PACKING, for High Pressure Engines. This Packing has been specially designed to overcome the difficulties experienced by engineers and others in the practical working of engines of the most modern type of construction. The greatly increased skill and workmanship now obtained in the construction of engines and boilers have led to a rapid increase in the working pressure, the object being the attainment of a high rate of speed combined with economical working, the practical advantage of which, however, cannot be realised unless the Packings are so constructed as to avoid stoppages for the purpose of re-packing the stuffing boxes. It is now a recognised fact that the most perfect heat-resisting material suitable for the purpose of a Packing is Asbestos, but to ensure a successful application of this fibre, great skill is required in manufacture. In this Packing the Asbestos is woven into a stout cloth, and owing to the peculiar way in which it is manipulated, great elasticity is imparted to the Packing. This Packing has met with the most unqualified approval wherever it has been used, and on being taken out after about twelve months, working at 70 lb. pressure, it has been found to be in a perfect state of preservation, and was therefore replaced. The Patent Block Packing is square, as Fig. 1, and Figs. 2 and 3 represent the Round Block Packing with solid and hollow rubber core, and Fig. 4 without core, but with rubber inlaid. An Engineer writes as follows:—"The Asbestos Block Packing works splendidly. I have never seen its equal. We keep our gland nuts so that you can move them with finger and thumb, and can maintain a constant vacuum of 28½ in." As these packings are extensively imitated, and as it is a common practice among dealers and agents to supply the cheaper manufactures at my list prices, users are requested to see that the packing supplied to them bears my trade mark.

TRADE MARK.

The goods of this house are of the highest quality only, and no attempt is made to compete with other manufacturers by the supply of inferior materials at low prices. All orders must be sent direct to the undermentioned depots and not through Agents or Factors.

BELL'S ASBESTOS BOILER PRESERVATIVE. This useful mixture by absorbing the free oxygen that is in the water entirely checks pitting and corrosion. It also disintegrates incrustation so immediately as to prevent its adhering to the plates. Not only is a great economy of fuel effected by keeping boilers clean, but the risk of having the plates burned is thereby obviated. It has been computed that 1/16 in. thick of incrustation causes a waste of 15 per cent. of coal; ¼ in., 60 per cent.; ½ in., 150 per cent. Thus the Preservative avoids the great risks which are inseparable from scaled plates, lengthens the life of a boiler and covers its own cost a hundred-fold by economy of fuel. It is entirely harmless, and has no injurious action on metals. It can be put into the feed tank or boiler, as may be most convenient. Sold in drums and casks bearing the Trade Mark, without which none is genuine.

BELL'S ASBESTOS YARN and SOAPSTONE PACKING

for Locomotives, and all Stationary Engines running at very high speed with intense friction.

The following Testimonial refers to this Packing:—

Festiniog Railway, Locomotive Superintendent's Office,
Portmadoc, January 13, 1883.

Mr. John Bell, 118, Southwark-street, S.E.

DEAR SIR,

I have much pleasure in saying that the Asbestos Yarn and Soapstone Packing gives every satisfaction; indeed, better than we expected. We have a locomotive packed with it, which has been running five months (and think of the piston speed with our small wheels). I think the Soapstone a great improvement, as it keeps the packing elastic, and prevents it getting hard. I am very pleased with its working, and also the very low price for such good lasting Packing. The Asbestos Yarn we find is very useful, and answers admirably.

Yours truly,
(Signed) W. WILLIAMS.

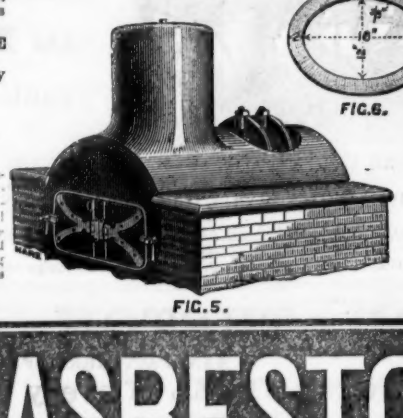


FIG. 5.

FIG. 6.

FIG. 1.

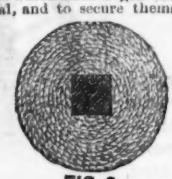


FIG. 2.

FIG. 4.

FIG. 3.

BELL'S ASBESTOS and INDIA-RUBBER WOVEN TAPE and SHEETING, for making every class of Steam and Water Joints. It can be bent by hand to the form required, without puckering, and is especially useful in making joints of manhole and mudhole doors; also for large "still" joints where boiling fat and steam have to be resisted. It is kept in stock in rolls of 100 ft., from ½ in. (Fig. 6) to 3 in. wide, and any thickness from 1/16 in. upwards. Manhole covers can be lifted many times before the renewal of the jointing material is necessary. The same material is made up into sheets about 40 in. square, and each sheet bears the Trade Mark, without which none is genuine. It is very necessary to guard against imitations of this useful material, and to secure themselves against being supplied with these inferior articles at my price, users are recommended to see that every 10 ft. length of the Asbestos Tape purchased by them bears the Trade Mark.

BELL'S ASBESTOS BOILER AND PIPE COVERING COMPOSITION, for coating every class of steam pipes and boilers, non-combustible and easily applied when steam is up; adheres to metals and preserves them from rust; prevents the unequal expansion and contraction of boilers exposed to weather; covers 50 per cent. more surface than any other coating, and is absolutely indestructible. It can be stripped off after many years' use, mixed up with 20 per cent. of fresh, and applied again. The composition is supplied dry, and is only to be mixed with water to the consistency required for use.

A Horizontal Boiler, 17 ft. 6 in. long, 15-H.P., gave the following results:—

Temperature on Plates - - -	186 deg.
„ „ Covering - -	94 deg.

One ton of coal was saved per week, and although the fire was raked out every evening, 20 lbs. of steam were found in the boiler next morning.

The following Testimonial refers to this Covering:—

Offices of the Wimbledon Local Board, Wimbledon,
Nov. 28th, 1883.

DEAR SIR,—It may interest you to know that we save exactly 40 per cent. in fuel through using your covering.—Yours truly, W. SANTO CRIMP, C.E., F.G.S.

BELL'S SPECIAL LONDON-MADE ASBESTOS MILLBOARD, for Dry Steam Joints, made of the best Asbestos fibre, is well-known for its toughness and purity, and is absolutely free from the injurious ingredients frequently used to attain an appearance of finish, regardless of the real utility of the material. Made in sheets measuring about 40 in. square, from 1-64th in. to 1 in., and ½ millimetre to 25 millimetres thick. Each sheet bears the Trade Mark.

BELL'S ASBESTOS EXPANSION SHEETING (PATENT).

This Sheeting is another combination of Asbestos with India-rubber, giving to the steam user the special advantages of both materials.

The India-rubber Washer is protected from the action of heat and grease by an outer coating of vulcanised Asbestos Cloth, thus producing an excellent joint where expansion and contraction render other materials unserviceable.

This material is admirably suited to steam pipe joints and every class of valve.

Valves made of this material are very durable, as they are not subject to injury by oil.

BELL'S "ASBESTOS LUBRICANT."

ILLUSTRATED PRICED CATALOGUE FREE ON APPLICATION TO

BELL'S ASBESTOS WORKS, SOUTHWARK, LONDON, S. E.

OR THE DEPOTS—118a, SOUTHWARK STREET, S.E.,

Victoria Buildings, Deansgate, MANCHESTER. 11 and 13, St. Vincent Place, GLASGOW. 39, Mount Stuart Square, CARDIFF. 21, Ritter Strasse, BERLIN.

The New System for Working Gold and Diamond Alluvials.

THE "BALL PATENT."

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This new system renders River and Placer Marsh Swamps and Plateau Mining the cheapest of all. No head of water required as per Californian Hydraulic System. Only a few tons of water wanted a day.

ABSOLUTELY CLEARS THE LAST PARTICLE ON BED ROCK OR CLAY BOTTOM.

No fall required for dumping tailings Depths of rivers, floods, and other difficulties entirely surmounted. 600 tons a day raised, dispersed, washed, and dumped per day for 3d. a ton by smallest plant, 1200 tons by second size plant at 2d. per ton.

See *Mining Journal*, 19th January and 16th February, 1884, on THE CHEAPEST METHOD OF TREATING AURIFEROUS ALLUVIALS.

NOTICE—TO MINING INVESTORS.

In such esteem is the system held that several extraordinary participations in Gold Alluvials are offered simply for the trouble of putting plant on certain concessions and working it.

Syndicate A completed.

WANTED, investors in B Syndicate, composed of 750 Shares of £10.

Profits are so enormous that it is deemed advisable not to publish them, but they will be communicated to *bona fide* inquiries.

SUBSCRIPTION NOW OPEN.

Apply by letter first, or personally at above address, Mondays and Tuesdays, 11 to 2 P.M.

Now ready, price 25s., post free.

COMPOUND DIVISION COST SHEET READY RECKONER,
Designed for effecting in minutes what has hitherto taken hours to accomplish.
For use in making out Cost Sheets of Collieries, Ironstone and other Mines, Iron, Gas, and Water Works, Quarries, and Manufactories generally.
For Accountants, Merchants, Public, and Private Offices.
By WILLIAM WETHERED.

This work is applicable to calculations where any number of articles cost is given sum, and the price of one of such number is required.

The circulation of such a book as this must necessarily be limited. It is doubtful whether it will pay more than the bare cost of publishing, allowing nothing for the enormous amount of labour such a mass of figures has occasioned. The price cannot be named at less than 25s., and it is not too much to say that where it can be applied its cost will be saved in a few weeks. It will be found invaluable to accountants generally.

Copies can now be had, and will be forwarded from the MINING JOURNAL Office on receipt of Post Office Order for the amount.

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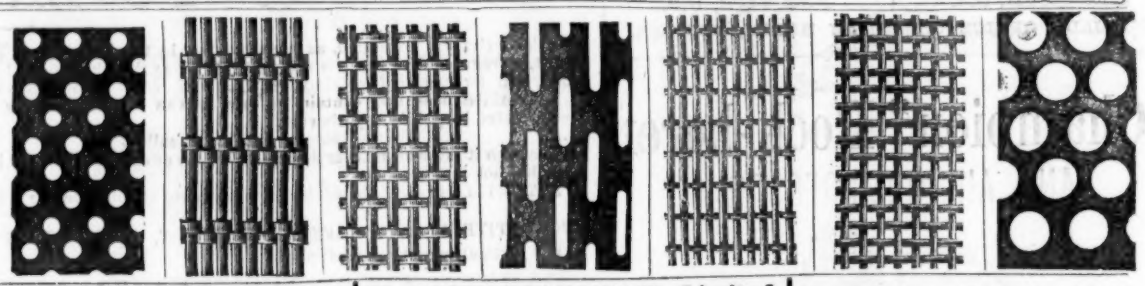

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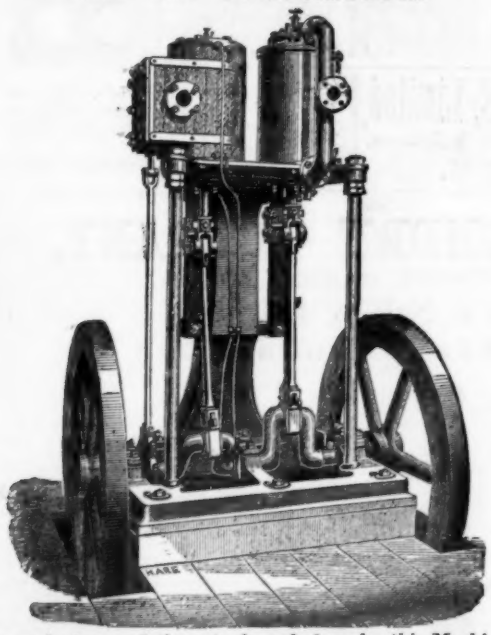

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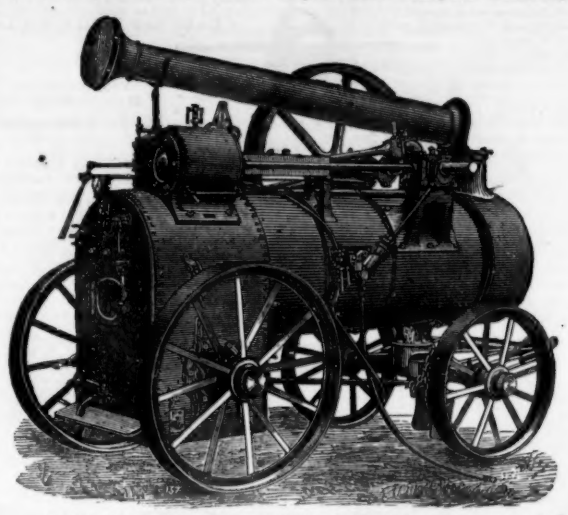

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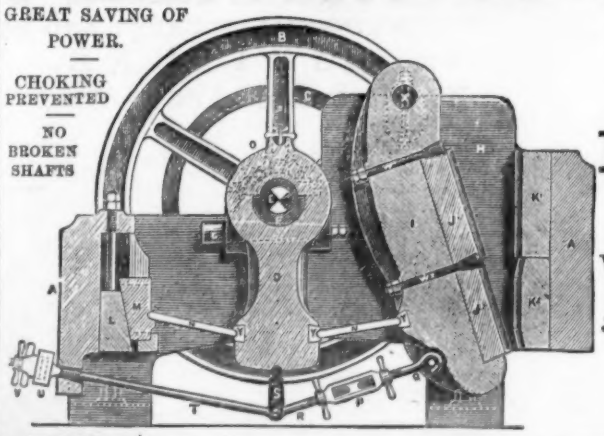

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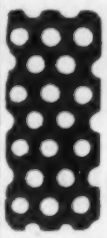

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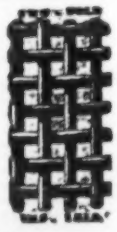

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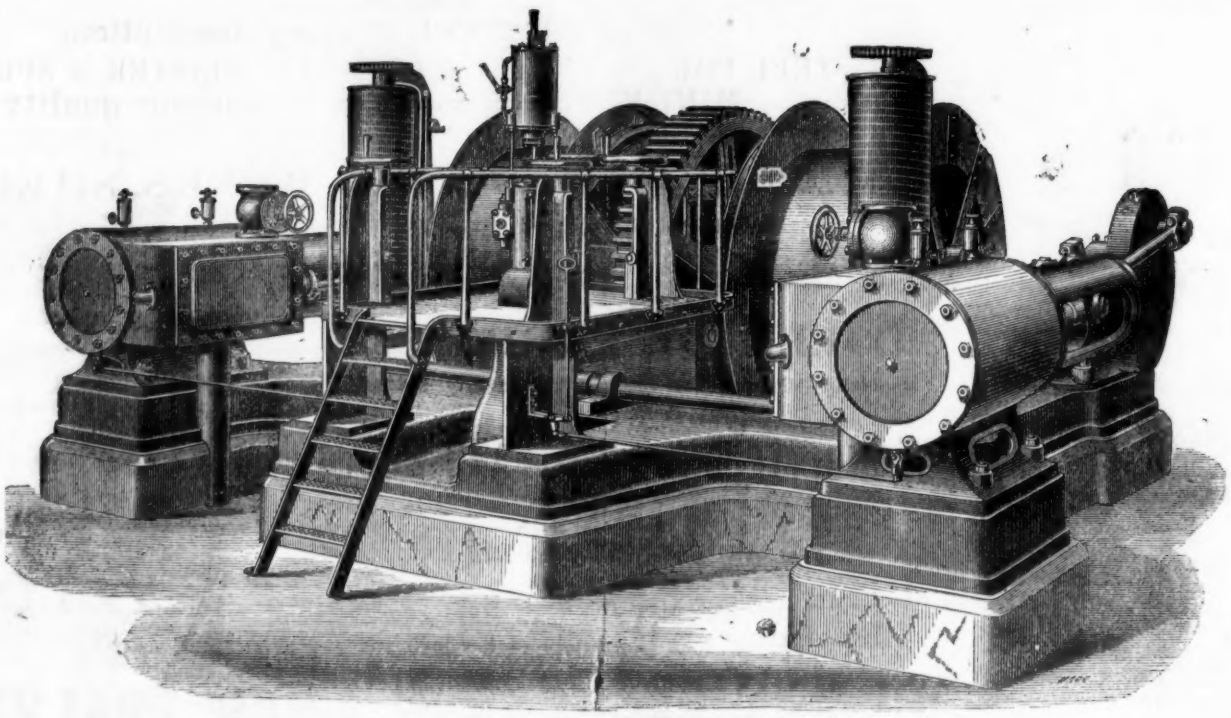

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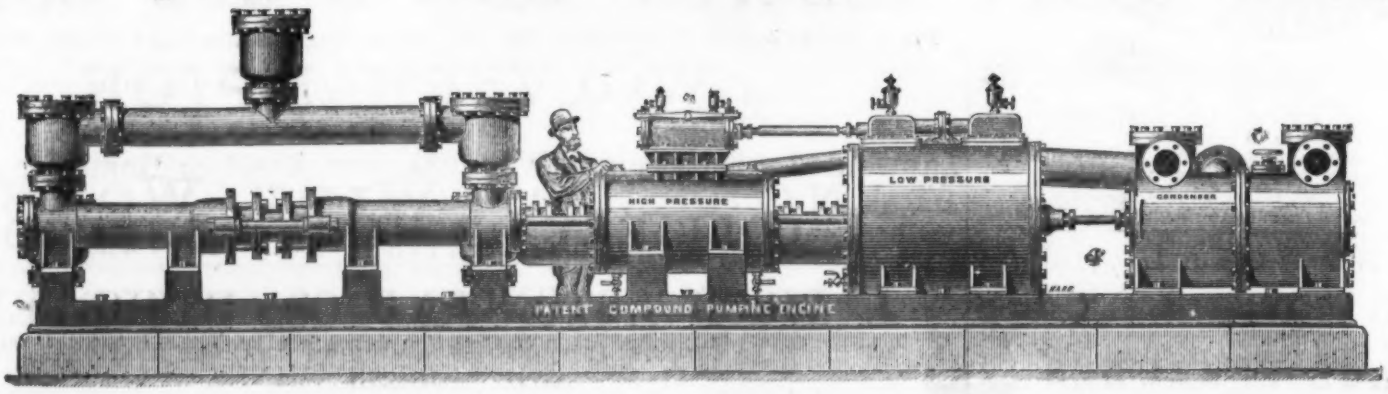

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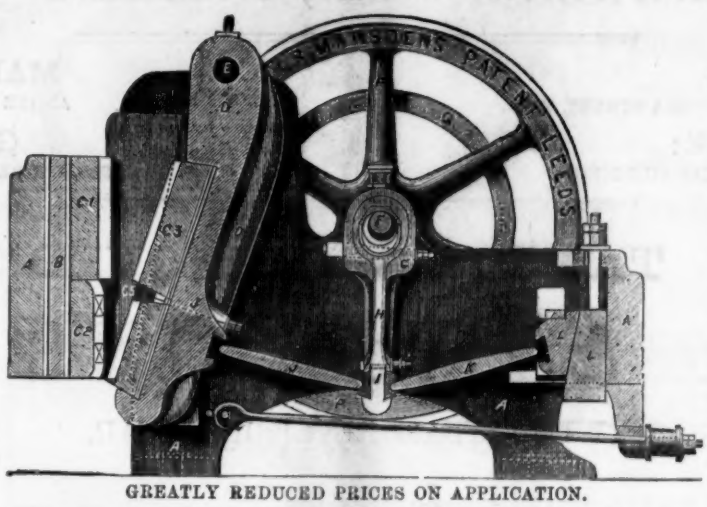

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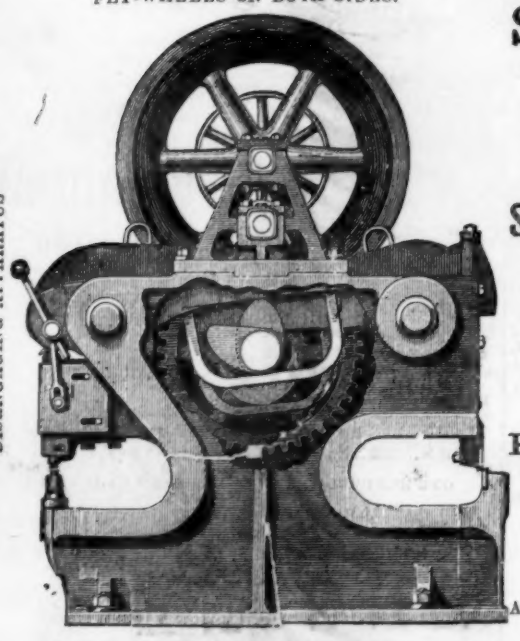

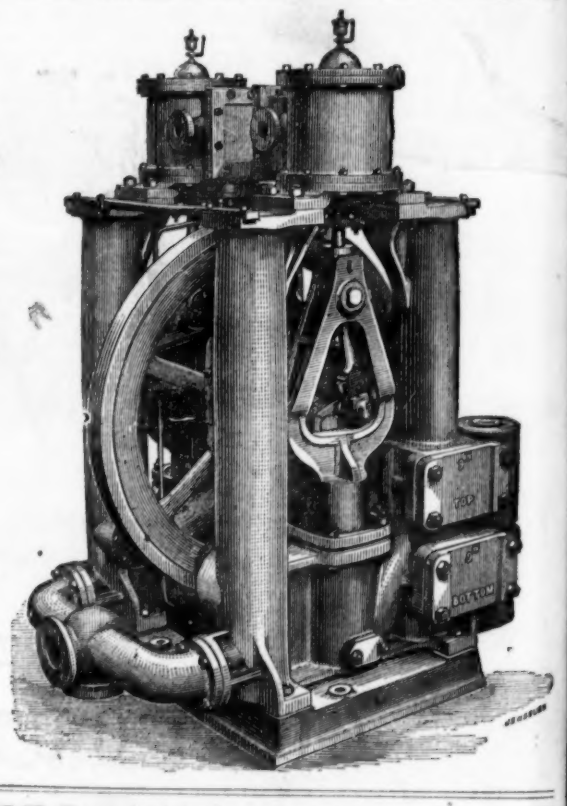

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